

59 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:152970 HCAPLUS

DN 134:201569

TI Nanoporous silica treated with **siloxane** polymers for ULSI applications

IN Rutherford, Nicole; Ramos, Teresa; Wu, Hui-jung; Katsanes, Ron; Drage, James

PA Alliedsignal Inc., USA

SO PCT Int. Appl., 43 pp.

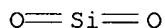
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 2001015214	A1	20010301	WO 2000-US23191	20000823
	US 6318124	B1	20011120	US 1999-379484	19990823
PRAI	US 1999-379484	A	19990823		
AB	A surface-coated nanoporous SiO ₂ dielec. film that was prepd. by a process comprising the steps of forming a nanoporous SiO ₂ dielec. coating on a substrate, and coating the formed nanoporous SiO ₂ dielec. film with a coating compn. comprising a polymer precursor, under conditions effective to form a strength-enhancing and/or hydrophobicity enhancing layer on the treated nanoporous SiO ₂ dielec. film.				
IT	7631-86-9 , Silica, processes				
	RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)				
	(nanoporous silica dielec. film treated with siloxane polymers for ULSI applications)				
RN	7631-86-9 HCAPLUS				
CN	Silica (7CI, 8CI, 9CI) (CA INDEX NAME)				





INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : H01L 21/3105, C01B 33/159	A1	(11) International Publication Number: WO 00/44036 (43) International Publication Date: 27 July 2000 (27.07.00)
(21) International Application Number: PCT/US00/01626 (22) International Filing Date: 26 January 2000 (26.01.00) (30) Priority Data: 60/117,248 26 January 1999 (26.01.99) US Not furnished 19 January 2000 (19.01.00) US (71) Applicant: ALLIEDSIGNAL INC. [US/US]; 101 Columbia Road, P.O. Box 2245, Morristown, NJ 07962-2245 (US). (72) Inventors: WU, Hui-Jung; 38770 Buckboard Common, Fremont, CA 94536 (US). DRAGE, James, S.; 34906 Seal Rock Terrace, Fremont, CA 94555 (US). (74) Agents: CRISS, Roger, H. et al.; AlliedSignal Inc., (Law Dept., Attn: A. Olinger), 101 Columbia Road, P.O. Box 2245, Morristown, NJ 07962-2245 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: USE OF MULTIFUNCTIONAL SI-BASED OLIGOMER/POLYMER FOR THE SURFACE MODIFICATION OF NANOPOROUS SILICA FILMS (57) Abstract <p>A process for treating a silica film on a substrate, which includes reacting a suitable silica film with an effective amount of a surface modification agent, wherein the silica film is present on a substrate. The reaction is conducted under suitable conditions and for a period of time sufficient for the surface modification agent to form a hydrophobic coating on the film. The surface modification agent includes at least one type of oligomer or polymer reactive with silanols on the silica film. Dielectric films and integrated circuits including such films are also disclosed.</p>		

INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/US 00/01626

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01L21/3105 C01B33/159

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C01B H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	EP 0 849 796 A (TEXAS INSTRUMENTS INC) 24 June 1998 (1998-06-24) column 1 column 4	20-28 1,11,15, 16,18,19
X A	EP 0 688 052 A (TEXAS INSTRUMENTS INC) 20 December 1995 (1995-12-20) page 3 page 5, line 58 -page 6, line 1	20-28 1,3,11, 15,16, 18,19
X	US 4 072 796 A (REINHARDT HELMUT ET AL) 7 February 1978 (1978-02-07) column 3	29

-/-

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *B* document member of the same patent family

Date of the actual completion of the international search

14 April 2000

Date of mailing of the international search report

02/05/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
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Fax: (+31-70) 340-3016

Authorized officer

Szarowski, A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/01626

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 885 262 A (TING CHIU H ET AL) 5 December 1989 (1989-12-05) column 6	
A	US 5 069 816 A (DESANTIS DOMINICK A ET AL) 3 December 1991 (1991-12-03) column 6, line 1 - line 21 column 15	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/01626

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0849796	A	24-06-1998	JP 10178006 A	30-06-1998
EP 0688052	A	20-12-1995	US 5488015 A	30-01-1996
			JP 7321206 A	08-12-1995
			US 5747880 A	05-05-1998
US 4072796	A	07-02-1978	DE 2435860 A	12-02-1976
			BE 831705 A	26-01-1976
			ES 437432 A	01-12-1976
			FR 2279667 A	20-02-1976
			GB 1504977 A	22-03-1978
			JP 1118711 C	28-10-1982
			JP 51014900 A	05-02-1976
			JP 57008763 B	18-02-1982
			NL 7508898 A,B,	27-01-1976
US 4885262	A	05-12-1989	JP 3200329 A	02-09-1991
US 5069816	A	03-12-1991	NONE	



(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
24.06.1998 Bulletin 1998/26

(51) Int Cl.⁶: **H01L 23/532**

(21) Application number: 97310137.1

(22) Date of filing: 16.12.1997

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
 NL PT SE**
 Designated Extension States:
AL LT LV MK RO SI

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(30) Priority: 17.12.1996 US 34423 P

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(54) Improvements in or relating to integrated circuits

(57) An integrated circuit with an intermetal level di-

electric (IMD) including an organic-silica hybrid (110) and located between metal lines (104).

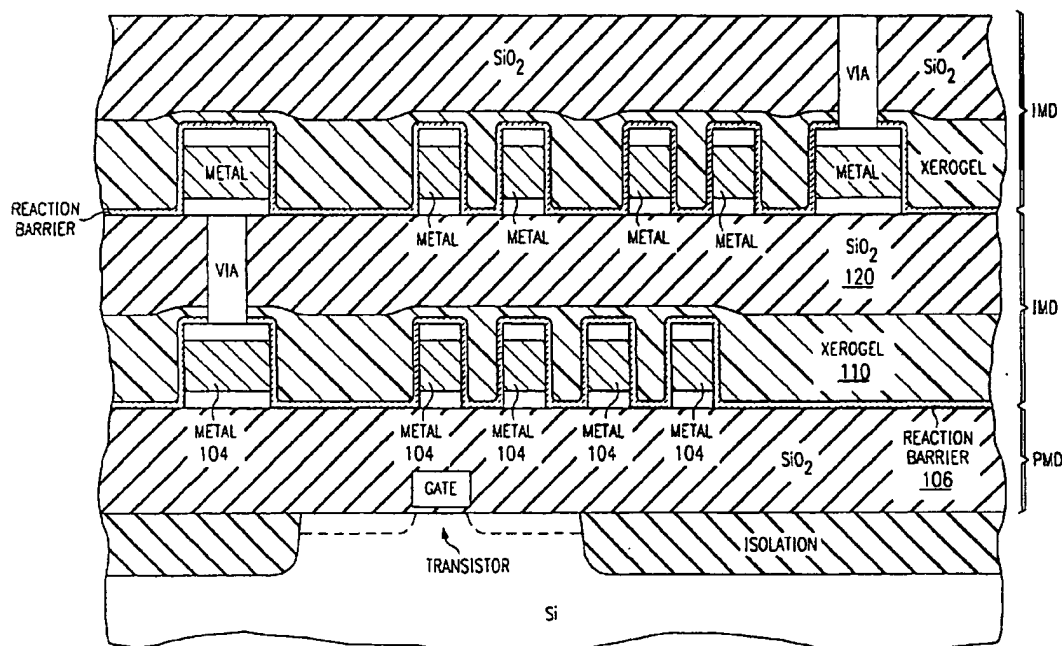


Figure 3.



Europäisches Patentamt
European Patent Office
Office européen des brevets



Publication number: **0 688 052 A2**

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 95107519.1

(51) Int. Cl.⁶: H01L 23/522, H01L 23/532

(22) Date of filing: 17.05.95

(30) Priority: 20.05.94 US 246432

(43) Date of publication of application:
20.12.95 Bulletin 95/51

(84) Designated Contracting States:
DE FR GB IT NL

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Inventor: **Jeng, Shin-Puu**

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Inventor: **Gnade, Bruce E.**

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Inventor: **Cho, Chih-Chen**

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(74) Representative: **Schwepfinger, Karl-Helz,**
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(54) Improvements in or relating to fabrication of semiconductor devices

(57) This invention provides a semiconductor device and process for making the same with dramatically reduced capacitance between adjacent conductors and an interlayer dielectric construction which emphasizes mechanical strength, etch compatibility, and good heat transfer. This process can include applying a solution between conductors 24, and then gelling, surface modifying, and drying the solution to form an extremely porous dielectric layer 28. A non-porous dielectric layer 30 may be formed over porous layer 28, which may complete an interlayer dielectric and provide mechanical strength, heat transfer, and a solid layer for via etch. A novel process for creating the porous dielectric layer is disclosed, which can be completed at vacuum or ambient pressures, yet results in porosity, pore size, and shrinkage of the dielectric during drying comparable to that previously attainable only by drying gels at supercritical pressure.

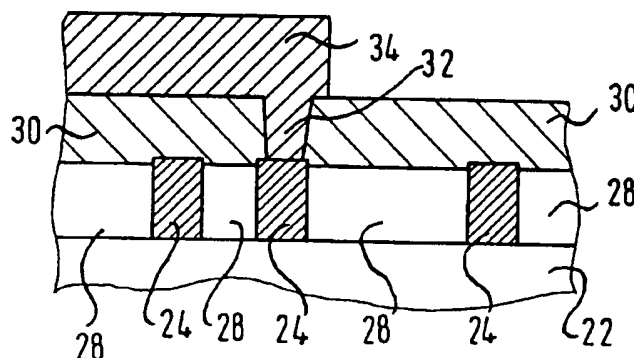


Fig.3D

EP 0 688 052 A2



US005488015A

United States Patent [19]

Havemann et al.

[11] **Patent Number:** 5,488,015[45] **Date of Patent:** Jan. 30, 1996[54] **METHOD OF MAKING AN INTERCONNECT STRUCTURE WITH AN INTEGRATED LOW DENSITY DIELECTRIC**

5,354,713 10/1994 Kim et al. 437/235

FOREIGN PATENT DOCUMENTS

1-51625 2/1989 Japan .
 1-59815 3/1989 Japan .
 4-152656 5/1992 Japan .
 6-84787 3/1994 Japan .
 6-97163 4/1994 Japan .

[75] **Inventors:** Robert H. Havemann, Garland;
 Shin-Puu Jeng, Plano; Bruce E.
 Gnade, Rowlett; Chih-Chen Cho,
 Richardson, all of Tex.

[73] **Assignee:** Texas Instruments Incorporated,
 Dallas, Tex.

OTHER PUBLICATIONS

S. Wolf, "Silicon Processing for the VLSI/EVA" vol. II,
 1990, Lattice Press, pp. 222-235, 238-239.

Primary Examiner—Brian E. Hearn
Assistant Examiner—Leon Radomsky

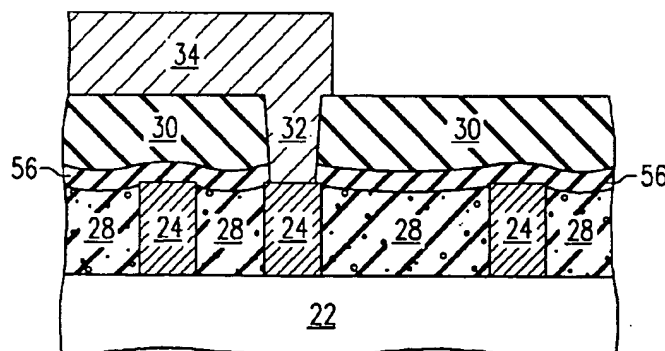
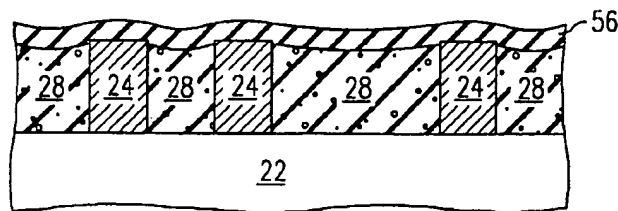
Attorney, Agent, or Firm—Richard A. Stoltz; Richard L.
 Donaldson; William E. Hiller

[21] **Appl. No.:** 246,432[22] **Filed:** May 20, 1994[51] **Int. Cl.⁶** H01L 21/441; H01L 21/469[52] **U.S. Cl.** 437/195; 437/231; 437/238;
 437/978; 148/DIG. 43; 148/DIG. 118[58] **Field of Search** 437/235, 238,
 437/978, 231, 195; 148/DIG. 43, DIG. 117,
 DIG. 118[56] **References Cited****U.S. PATENT DOCUMENTS**

4,017,528 4/1977 Unger et al. .
 4,141,055 2/1979 Berry et al. 361/410
 4,619,839 10/1986 Lehrer 437/231
 4,652,467 3/1987 Brinker et al. 427/246
 4,885,262 12/1989 Ting et al. 437/231
 4,987,101 1/1991 Kaanta et al. 437/927
 5,023,208 6/1991 Pope et al. 501/12
 5,079,188 1/1992 Kawai 437/231
 5,103,288 4/1992 Sakamoto et al. 357/71
 5,104,828 4/1992 Morimoto et al. 437/235
 5,155,576 10/1992 Mizushima 357/71
 5,270,267 12/1993 Ouellet 437/231
 5,352,630 10/1994 Kim et al. 437/231

[57] **ABSTRACT**

This invention provides a semiconductor device and process for making the same with dramatically reduced capacitance between adjacent conductors and an interlayer dielectric construction which emphasizes mechanical strength, etch compatibility, and good heat transfer. This process can include applying a solution between conductors 24, and then gelling, surface modifying, and drying the solution to form an extremely porous dielectric layer 28. A non-porous dielectric layer 30 may be formed over porous layer 28, which may complete an interlayer dielectric and provide mechanical strength, heat transfer, and a solid layer for via etch. A novel process for creating the porous dielectric layer is disclosed, which can be completed at vacuum or ambient pressures, yet results in porosity, pore size, and shrinkage of the dielectric during drying comparable to that previously attainable only by drying gels at supercritical pressure.

9 Claims, 6 Drawing Sheets



US005747880A

United States Patent [19]

Havemann et al.

[11] **Patent Number:** **5,747,880**[45] **Date of Patent:** **May 5, 1998**[54] **INTERCONNECT STRUCTURE WITH AN INTEGRATED LOW DENSITY DIELECTRIC**[75] **Inventors:** Robert H. Havemann, Garland; Shin-Puu Jeng, Plano; Bruce E. Gnade, Rowlett; Chih-Chen Cho, Richardson, all of Tex.[73] **Assignee:** Texas Instruments Incorporated, Dallas, Tex.

0 494 745 A3	7/1992	European Pat. Off. .
0 536 410 A1	4/1993	European Pat. Off. .
0 599 730 A3	6/1994	European Pat. Off. .
0 680 084 A1	2/1995	European Pat. Off. .
3345040	6/1985	Germany 257/760
0051625	2/1989	Japan .
0059815	3/1989	Japan .
0152656	5/1992	Japan .
0084787	3/1994	Japan .
0097163	4/1994	Japan .
2 266 181	10/1993	United Kingdom .

[21] **Appl. No.:** 751,901[22] **Filed:** Nov. 18, 1996**Related U.S. Application Data**

[60] Continuation of Ser. No. 473,840, Jun. 7, 1995, abandoned, which is a division of Ser. No. 246,432, May 20, 1994, Pat. No. 5,488,015.

[51] **Int. Cl.⁶** H01L 21/47; H01L 21/471; H01L 23/532[52] **U.S. Cl.** 257/759; 257/760[58] **Field of Search** 257/759, 760, 257/750, 758, 752, 637, 638, 639-644[56] **References Cited****U.S. PATENT DOCUMENTS**

4,017,528	4/1977	Unger et al.	260/448.8
4,141,055	2/1979	Berry et al.	361/410
4,619,839	10/1986	Lehrer	427/82
4,652,467	3/1987	Brinker et al.	427/246
4,885,262	12/1989	Ting et al.	437/231
4,987,101	1/1991	Kaanta et al.	437/927
5,023,208	6/1991	Pope et al.	501/12
5,079,188	1/1992	Kawai	437/195
5,103,288	4/1992	Sakamoto et al.	357/71
5,104,828	4/1992	Morimoto et al.	437/225
5,155,576	10/1992	Mizushima	357/71
5,270,267	12/1993	Ouellet	437/231
5,352,630	10/1994	Kim et al.	437/195
5,354,713	10/1994	Kim et al.	437/195

FOREIGN PATENT DOCUMENTS

0 333 132 A3 9/1989 European Pat. Off. .

OTHER PUBLICATIONS*Patent Abstracts of Japan*, vol. 012, No. 498 (E698) 24 Dec. '88.

U.S. Serial No. 08/137,658, Filed Oct. 15, 1993.

U.S. Serial No. 08/250,137, Filed May 27, 1994.

Silicon Processing for The VLSI Era, vol. II: Process Integration, Stanley Wolf PhD, pp. 222-239.

U.S. Serial No. 08/234,100, Filed Apr. 28, 1994.

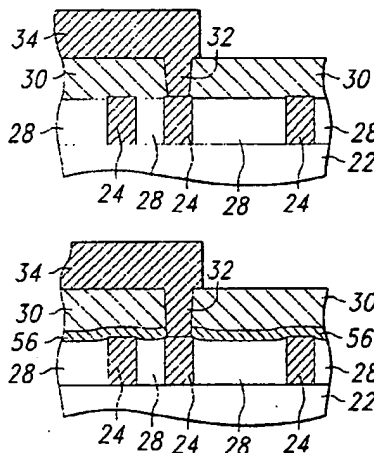
U.S. Serial No. 08/234,099, Filed Apr. 28, 1994.

Primary Examiner—Wael Fahmy*Attorney, Agent, or Firm*—James E. Harris; James C. Kesterson; Richard L. Donaldson

[57]

ABSTRACT

This invention provides a semiconductor device and process for making the same with dramatically reduced capacitance between adjacent conductors and an interlayer dielectric construction which emphasizes mechanical strength, etch compatibility, and good heat transfer. This process can include applying a solution between conductors 24, and then gelling, surface modifying, and drying the solution to form an extremely porous dielectric layer 28. A non-porous dielectric layer 30 may be formed over porous layer 28, which may complete an interlayer dielectric and provide mechanical strength, heat transfer, and a solid layer for via etch. A novel process for creating the porous dielectric layer is disclosed, which can be completed at vacuum or ambient pressures, yet results in porosity, pore size, and shrinkage of the dielectric during drying comparable to that previously attainable only by drying gels at supercritical pressure.

12 Claims, 6 Drawing Sheets

[54] **PROCESS FOR HYDROPHOBIZATION OF FINELY DIVIDED SILICA AND SILICATES USING PREPOLYCONDENSED ORGANOSILANE**

[75] **Inventors:** Helmut Reinhardt, Rodenkirchen; Karl Trebinger; Gottfried Kallrath, both of Wesseling, all of Germany

[73] **Assignee:** Deutsche Gold- und Silber-Scheldeanstalt vormals Roessler, Frankfurt, Germany

[21] **Appl. No.:** 581,890

[22] **Filed:** May 29, 1975

[30] **Foreign Application Priority Data**

July 25, 1974 Germany 2435860

[51] **Int. Cl.²** B32B 17/00; C01B 33/18

[52] **U.S. Cl.** 428/405; 427/221; 260/42.15

[58] **Field of Search** 427/220, 221, 387; 428/405; 260/375 B, 42.15

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,911,324 11/1959 Evans et al. 427/387
2,993,809 7/1961 Bueche et al. 427/220

3,252,825 5/1966 Marzocchi et al. 427/220
3,859,320 1/1975 Atherton 260/375 B
3,904,787 9/1975 Trebinger et al. 427/220
3,920,865 11/1975 Laufer et al. 427/387

FOREIGN PATENT DOCUMENTS

856,738 11/1970 Canada 427/387
1,074,559 2/1960 Germany 427/220
705,261 3/1954 United Kingdom 427/387

Primary Examiner—Harry J. Gwinnell

Assistant Examiner—S. Silverberg

Attorney, Agent, or Firm—Cushman, Darby & Cushman

[57]

ABSTRACT

Finely divided hydrophobic silica and silicates are prepared by precipitating of alkali silicate solutions with mineral acids or metal salt solutions and treated with organohalosilanes. To the acid precipitation suspension recovered in known manner there is added as a hydrophobizing agent an organohalosilane, preferably at about 50° to 90° C., the precipitated product filtered, washed and dried and there subjected to a temperature of 300° to 400° C. There is used as the organohalosilane a prepolycondensed organohalosilane or a mixture of prepolycondensed organohalosilanes.

14 Claims, No Drawings

L61 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:513925 HCAPLUS

DN 133:128664

TI Use of multifunctional Si-based oligomer/polymer for the surface
modification of **nanoporous silica** films for
integrated-circuit fabrication

IN Wu, Hui-Jung; Drage, James S.

PA Alliedsignal Inc., USA

SO PCT Int. Appl., 40 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000044036	A1	20000727	WO 2000-US1626	20000126
	EP 1153426	A1	20011114	EP 2000-904495	20000126
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 2002001973	A1	20020103	US 2001-841453	20010424
PRAI	US 1999-117248P	P	19990126		
	US 2000-488075	A3	20000120		
	WO 2000-US1626	W	20000126		

AB A process for treating a SiO₂ film on a substrate, which includes reacting a suitable SiO₂ film with an effective amt. of a surface modification agent, wherein the SiO₂ film is present on a substrate. The reaction is conducted under suitable conditions and for a period of time sufficient for the surface modification agent to form a **hydrophobic** coating on the film. The surface modification agent includes at least one type of oligomer or polymer reactive with silanols on the SiO₂ film. Dielec. films and integrated circuits including such films are also disclosed.

09/841,453
PATENT FAMILY

L61 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:161579 HCAPLUS

DN 132:201837

TI Silane-based **nanoporous silica** thin films and their preparation

IN Hendricks, Neil; Smith, Douglas M.; Ramos, Teresa; Wallace, Stephen; Drage, Jim

PA Alliedsignal Inc., USA

SO PCT Int. Appl., 47 pp.
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

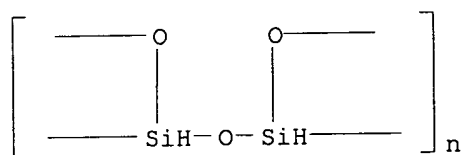
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000013222	A1	20000309	WO 1999-US19357	19990824
	AU 9955844	A1	20000321	AU 1999-55844	19990824
PRAI	US 1998-98068P	P	19980827		
	WO 1999-US19357	W	19990824		

AB Improved processes for forming **hydrophobic** nanoporous dielec. coatings on substrates involve forming a reaction mixt. that combines .gtoreq.1 mono-, di-, or trifunctional precursor with .gtoreq.1 tetrafunctional precursor, recovering the reaction product, and then depositing the reaction product on a suitable substrate, followed by gelling of the deposited film. Precursors include alkoxy, acetoxy, and halogen leaving groups. Optional processes to enhance the **hydrophobicity** of a **nanoporous SiO₂** film are also provided, as well as improved **nanoporous SiO₂** films, coated substrates, and integrated circuits prep'd. by the new processes.

IT **153315-81-2**, Silanetriol homopolymer, ladder sru
RL: RCT (Reactant); RACT (Reactant or reagent)
(in prepn. of silane-based **nanoporous silica** thin films)

RN 153315-81-2 HCAPLUS

CN Poly[1,3:1,3-disiloxanediylidene-1,3-bis(oxy)] (9CI) (CA INDEX NAME)



L49 ANSWER 39 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 1988:474421 HCAPLUS

DN 109:74421

TI Influence of the chemical nature of Aerosil **surface** on its interaction with **poly(dimethylsiloxane)**

AU Litvinov, V. M.; Wobst, M.; Reichert, D.; Schneider, H.; Zhdanov, A. A.

CS Inst. Synth. Polym., Moscow, 117333, USSR

SO Acta Polym. (1988), 39(5), 243-8

CODEN: ACPODY; ISSN: 0323-7648

DT Journal

LA German

AB The mol. motions in **poly(hexamethylcyclotrisiloxane)** composites with **SiO₂** contg. adsorbed water, **hydrophobic** groups, and hydrophilic groups on the **surface** were studied. The mobility of the adsorbed polymer chains was restricted and depended on the nature of the **SiO₂ surface**. The fast reorientational motions of unadsorbed chains were similar to those in the unfilled polymer, but the slow diffusional motions were limited by numerous topol. restrictions.

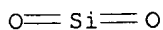
IT 7631-86-9, Silica, properties

RL: PRP (Properties)

(di-Me **siloxane** adsorbed on Aerosil, mol. motions of, **silica surface** treatment effect on)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



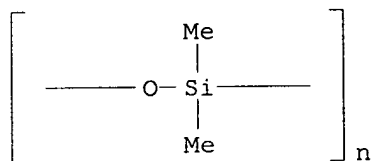
IT 9016-00-6

RL: USES (Uses)

(mol. motions of **silica**-adsorbed, **silica surface** treatment effect on)

RN 9016-00-6 HCAPLUS

CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)



L59 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:720555 HCAPLUS

DN 127:364522

TI Selective Deposition of Conducting Polymers on **Hydroxyl**
-Terminated Surfaces with Printed Monolayers of **Alkylsiloxanes**
as Templates

AU Huang, Zheyuan; Wang, Pen-Cheng; MacDiarmid, Alan G.; Xia, Younan;
Whitesides, George

CS Department of Chemistry, University of Pennsylvania, Philadelphia, PA,
19104, USA

SO Langmuir (1997), 13(24), 6480-6484
CODEN: LANGD5; ISSN: 0743-7463

PB American Chemical Society

DT Journal

LA English

AB This paper describes the use of patterned self-assembled monolayers (SAMs) in area-selective deposition of conducting polymers (polypyrrole and polyaniline) on insulating, **hydroxyl**-terminated surfaces such as Si/SiO₂ and glass. Patterned SAMs of **octadecylsiloxane** were generated on the **hydroxyl**-terminated surfaces using microcontact printing; they defined and directed the deposition of conducting polymers. The rate of deposition on the **hydrophobic** surface is higher than that on the hydrophilic surface: immersion of a substrate patterned with a Me-terminated SAM in an appropriate aq. polymn. bath produced a pos. pattern of the conducting polymer on the surface. The conducting polymer deposited on the **hydrophobic** region of a surface completely covered by the polymer could be readily removed by transferring it to adhesive tape to form a pos. pattern on the tape, leaving a neg. pattern on the surface of the substrate. The conducting polymer deposited on the **hydrophobic** surface had a more extended conformation, and thus a higher cond. (approx. orders of magnitude in difference), than that formed on the hydrophilic surface. The smallest features of conducting polymers generated using these procedures were .apprx.2 .mu.m in lateral dimension. The edge roughness of these patterns was .apprx.0.5 .mu.m. These patterned microstructures of conducting polymers were conductive; they were used as electrodes in display devices based on polymer dispersed liq. crystals.

IT 7440-21-3, Silicon, processes 7631-86-9, Silica,
processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(selective deposition of conducting polymers on **hydroxyl**
-terminated surfaces with printed monolayers of **alkylsiloxanes**
as templates)

RN 7440-21-3 HCAPLUS

CN Silicon (7CI, 8CI, 9CI) (CA INDEX NAME)

Si

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L34 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:297345 HCAPLUS

DN 126:279681

TI Production of suspensions with hydrophobic surface by mixing with alkali metal hydroxide or carbonate and treatment with organic silicon compounds

IN Smirnov, Aleksandr V.; Golipad, Petr N.; Orlov, Oleg G.

PA Smirnov, Aleksandr Vitalevich, Russia; Orlov, Oleg Georgievich

SO Russ.

From: Izobreteniya 1996, (25), 166.

CODEN: RUXXE7

DT Patent

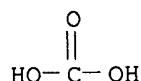
LA Russian

IC ICM C01B033-18

CC 48-11 (Unit Operations and Processes)

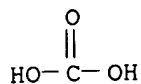
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	RU 2066297	C1	19960910	RU 1993-13055	19930316
AB	Title only translated.				
ST	suspension hydrophobic surface prepn				
IT	Polysiloxanes , uses				
	RL: NUU (Other use, unclassified); USES (Uses)				
	(in prodn. of suspensions with hydrophobic surface)				
IT	Cement (construction material)				
	Suspensions				
	(prodn. of suspensions with hydrophobic surface by mixing with alkali metal hydroxide or carbonate and treatment with org. silicon compds.)				
IT	Asbestos				
	Mica-group minerals, processes				
	Oxides (inorganic), processes				
	Perlite				
	RL: PEP (Physical, engineering or chemical process); PROC (Process)				
	(prodn. of suspensions with hydrophobic surface by mixing with alkali metal hydroxide or carbonate and treatment with org. silicon compds.)				
IT	497-19-8, Sodium carbonate, uses 584-08-7, Potassium carbonate 1310-58-3, Potassium hydroxide, uses 1310-73-2				
	, Sodium hydroxide, uses				
	RL: NUU (Other use, unclassified); USES (Uses)				
	(in prodn. of suspensions with hydrophobic surface)				
IT	7631-86-9, Aerosil, processes 7782-42-5, Graphite, processes 14807-96-6, Talc, processes				
	RL: PEP (Physical, engineering or chemical process); PROC (Process)				
	(prodn. of suspensions with hydrophobic surface by mixing with alkali metal hydroxide or carbonate and treatment with org. silicon compds.)				
IT	497-19-8, Sodium carbonate, uses 584-08-7, Potassium carbonate 1310-58-3, Potassium hydroxide, uses 1310-73-2				
	, Sodium hydroxide, uses				
	RL: NUU (Other use, unclassified); USES (Uses)				
	(in prodn. of suspensions with hydrophobic surface)				
RN	497-19-8 HCAPLUS				
CN	Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)				



●2 Na

RN 584-08-7 HCAPLUS
CN Carbonic acid, dipotassium salt (8CI, 9CI) (CA INDEX NAME)



●2 K

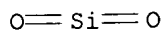
RN 1310-58-3 HCAPLUS
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K⁻ OH

RN 1310-73-2 HCAPLUS
CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na⁻ OH

IT 7631-86-9, Aerosil, processes 7782-42-5, Graphite,
processes 14807-96-6, Talc, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(prodn. of suspensions with **hydrophobic surface** by
mixing with alkali metal **hydroxide** or carbonate and treatment
with org. silicon compds.)
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

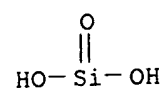


RN 7782-42-5 HCAPLUS
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

RN 14807-96-6 HCAPLUS
CN Talc (Mg₃H₂(SiO₃)₄) (9CI) (CA INDEX NAME)

5/19/02 09/841,453



● 3/4 Mg

L49 ANSWER 2 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:307912 HCAPLUS

DN 136:295569

TI Method of preparing **hydrophobic organophilic silica** by modification with alkoxysilanes

IN Graifer, V. I.; Kotel'nikov, V. A.

PA Aktsionernoe Obshchestvo "Rossiiskaya Innovatsionnaya Toplivno-Energeticheskaya Kompaniya", Russia

SO Russ., No pp. given
CODEN: RUXXE7

DT Patent

LA Russian

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	RU 2152967	C1	20000720	RU 1999-109446	19990427

OS MARPAT 136:295569

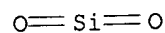
AB A method is described of prepg. **hydrophobic organophilic silica**. Method comprises chem. modification of **silica surface** during mech. agitation and at elevated temp. Modification is carried out by using compds. of general formula $R_4-nSiR'n$ or $R'4Si$ or $R_4-nSiHalnR''n-m$ wherein n is 1-3; m is 1-2; R is H, Me, Et, Cl is Me, Pr, phenyl; R' is $OCH_3OC_2H_5$ Hal is Cl, Br or I; R'' is vinyl, allyl, methoxy, ethoxy. Original silica is subjected to hydroxylation with water vapor. Modification with compds. of formula: $R_4-nSiR'n$ or $R'4Si$ is carried out in the presence of volatile acids. The invention provides a wider range of modifiers which make it possible to carry out chem. grafting of hydrocarbon, radicals and polymn. of compds. in **surface layer**.

IT 7631-86-9, Silica, uses 9016-00-6,
Poly[oxy(dimethylsilylene)] 28323-46-8,
Poly[oxy(ethenylmethylsilylene)]

RL: TEM (Technical or engineered material use); USES (Uses)
(method of prepg. **hydrophobic organophilic silica**
by modification with alkoxysilanes)

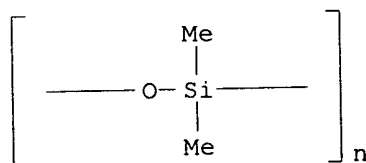
RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



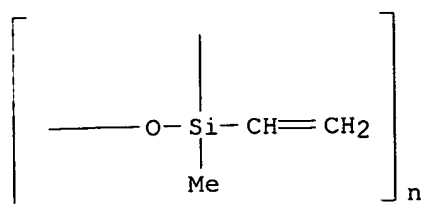
RN 9016-00-6 HCAPLUS

CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)



RN 28323-46-8 HCAPLUS

CN Poly[oxy(ethenylmethylsilylene)] (9CI) (CA INDEX NAME)



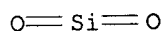
L49 ANSWER 13 OF 39 HCAPLUS COPYRIGHT 2002 ACS
 AN 1999:537962 HCAPLUS
 DN 131:158411
 TI Process for making **hydrophobic silica** gel with reduced
surface area under neutral conditions
 IN Burns, Gary Thomas; Deng, Qin; Hahn, James Richard; Reese, Clifford
 Carlton
 PA Dow Corning Corp., USA
 SO U.S., 7 pp., Cont. of U. S. Ser. No. 806,002, abandoned.
 CODEN: USXXAM
 DT Patent
 LA English
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5942590	A	19990824	US 1998-22282	19980211
	ES 2165147	T3	20020301	ES 1998-907514	19980218
PRAI	US 1997-806002	B2	19970224		

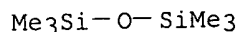
OS MARPAT 131:158411

AB The title method comprises two steps, where in the first step the pH of a mixt. comprising a silica hydrosol and colloidal silica is adjusted with a base to within a range of pH 3-7 to facilitate formation of a silica hydrogel having incorporated therein colloidal silica. In the second step the silica hydrogel is contacted with an organosilicon compd. in the presence of a catalytic amt. of a strong acid to effect **hydrophobing** of the **silica** hydrogel to form a **hydrophobic silica** gel having a **surface** area of 100-450 m²/g in the dry state. In a preferred process the **hydrophobic silica** gel is contacted with a sufficient quantity of a water-immiscible org. solvent to convert the **hydrophobic silica** hydrogel into a **hydrophobic silica** organogel. A water sol. compd. of cerium or iron may be added during conduct of the second step to improve heat stability of the **hydrophobic silica** gel.

IT 7631-86-9, LudoxSM, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (colloidal; process for making **hydrophobic silica**
 gel with reduced **surface** area under neutral conditions)
 RN 7631-86-9 HCAPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

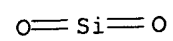


IT 107-46-ODP, Hexamethyldisiloxane, reaction products with
silica 7631-86-9DP, **Silica**, reaction products
 with silanes or **siloxanes**, preparation
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (process for making **hydrophobic silica** gel with
 reduced **surface** area under neutral conditions)
 RN 107-46-0 HCAPLUS
 CN Disiloxane, hexamethyl- (8CI, 9CI) (CA INDEX NAME)



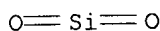
5/19/02 09/841,453

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

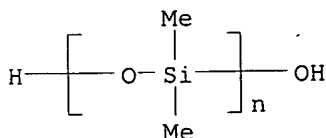


L49 ANSWER 14 OF 39 HCAPLUS COPYRIGHT 2002 ACS
 AN 1999:298419 HCAPLUS
 DN 130:325835
 TI **Hydrophobic** metal oxide fine powders and their preparation method
 IN Komai, Eiji; Murota, Masamichi; Jono, Hirokuni
 PA Nippon Aerosil Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11124464	A2	19990511	JP 1997-289521	19971022
AB	Title powders with little change in electrostatic charge, useful for thickeners, fillers, fluidity modifiers, etc., esp., as additives for electrophotog. toners, are prepd. by heating of metal oxide fine powders having sp. surface area 10-400 m ² /g with epoxy-contg. silanes, amino-contg. org. compds., and organopolysiloxanes whose both terminals are blocked with reactive groups. Thus, Aerosil 200 (fumed SiO ₂) 100, KBM 403 (epoxy-contg. silane) 3, diethylaminopropylamine 1.6, and .alpha.,.omega.- dihydroxydimethylpolysiloxane 20 parts were treated in hexane at 200.degree. for 1 h to give surface -treated SiO ₂ with hydrophobicity 95% and sp. surface area 100 m ² /g, showing friction charge +300 .mu.C/g initially, +340 .mu.C/g after 48 h at 100.degree. and 20% relative humidity, and +250 .mu.C/g after 48 h at 40.degree. and 80% relative humidity.				
IT	7631-86-9 , Aerosil 200, uses RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses) (colloidal; manuf. of hydrophobic powd. metal oxides by surface treating with epoxysilanes, amino-contg. org. compds. and siloxanes)				
RN	7631-86-9 HCAPLUS				
CN	Silica (7CI, 8CI, 9CI) (CA INDEX NAME)				



IT **31692-79-2**, Hydroxy-terminated **dimethylsiloxane**
31900-57-9D, Dimethylsilanediol homopolymer, hydroxy-terminated
 RL: MOA (Modifier or additive use); USES (Uses)
 (manuf. of **hydrophobic** powd. metal oxides by **surface** treating with epoxysilanes, amino-contg. org. compds. and **siloxanes**)
 RN 31692-79-2 HCAPLUS
 CN Poly[oxy(dimethylsilylene)], .alpha.-hydro-.omega.-hydroxy- (8CI, 9CI)
 (CA INDEX NAME)

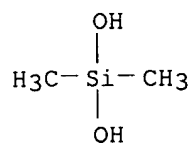


5/19/02 09/841,453

RN 31900-57-9 HCAPLUS
CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1066-42-8
CMF C2 H8 O2 Si



L49 ANSWER 16 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 1998:604872 HCAPLUS

DN 129:191139

TI Manufacture of **hydrophobic silica** gels with reduced **surface area**

IN Burns, Gary T.; Hahn, James R.; Lentz, Charles W.; Reese, Clifford C.

PA Dow Corning Corp., USA

SO PCT Int. Appl., 31 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9837020	A1	19980827	WO 1998-US3273	19980218
	AU 9866605	A1	19980909	AU 1998-66605	19980218
	EP 963345	A1	19991215	EP 1998-908610	19980218
	R: BE, DE, ES, FR, GB, IT				
	BR 9810408	A	20000822	BR 1998-10408	19980218
	JP 2001513066	T2	20010828	JP 1998-536883	19980218
PRAI	US 1997-806005	A	19970224		
	WO 1998-US3273	W	19980218		

OS MARPAT 129:191139

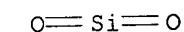
AB The method comprises three steps, where in the first step a mixt. comprising a silica hydrosol and colloidal silica is formed, the second step the mixt. is heat-treated in the presence of a strong mineral acid at a pH <1 to form a silica hydrogel having incorporated therein colloidal silica, and in the third step the silica hydrogel is contacted with an organosilicon compd. selected from organosilanes having a general formula $R_1aHbSiX_4-a-b$ where X is a halogen or C1-12 alkoxy radicals, a is 0-3, b is 0 or 1, a+b=1, 2, or 3 with the proviso that when b=1 then a+b=2 or 3 and **organosiloxanes** having a general formula $R_nSiO(4-n)/2$ where n is an integer of 2 or 3 in the presence of a catalytic amt. of a strong acid to effect **hydrophobing** of the **silica** hydrogel thereby forming a **hydrophobic silica** gel having a **surface area** of 100-450 m²/g as measured in the dry state.. In a preferred method the **hydrophobic silica** gel is contacted with a sufficient quantity of an org. solvent immiscible with water to convert the **hydrophobic silica** hydrogel into a **hydrophobic silica** organogel.

IT 7631-86-9, Ludox SM, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(colloidal; manuf. of **hydrophobic silica** gels with reduced **surface area**)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 107-46-0 9016-00-6, Polydimethylsiloxane

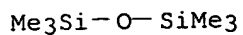
30110-75-9, Divinyltetramethyldisiloxane

RL: TEM (Technical or engineered material use); USES (Uses)
(manuf. of **hydrophobic silica** gels with reduced **surface area**)

RN 107-46-0 HCAPLUS

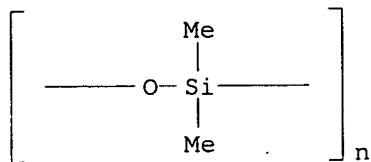
CN Disiloxane, hexamethyl- (8CI, 9CI) (CA INDEX NAME)

5/19/02 09/841,453



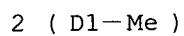
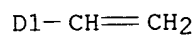
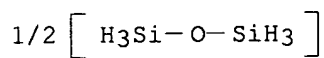
RN 9016-00-6 HCAPLUS

CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)



RN 30110-75-9 HCAPLUS

CN Disiloxane, diethenyltetramethyl- (9CI) (CA INDEX NAME)



L49 ANSWER 30 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 1996:226041 HCAPLUS

DN 124:292017

TI Manufacture of dispersions of **diorganopolysiloxanes** with high degree of polymerization for silicone rubber

IN Inoe, Yoshio

PA Shinetsu Chem Ind Co, Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

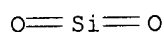
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08020722	A2	19960123	JP 1994-177650	19940706
	JP 2999927	B2	20000117		

AB Title dispersions are prepd. by mixing **diorganopolysiloxanes** HO(R1R2SiO)nH (I; R1-2 = hydrocarbyl; n is a no. for exhibiting viscosity at 25.degree. 5-100,000 cSt), **hydrophobic SiO2**, and volatile org. solvents and/or volatile **organosiloxanes** and treating the resulting dispersions with aminosilanes R3R4Si(NR5)2 (II; R3-4 = hydrocarbyl; R5 = alkyl) and/or partial hydrolyzates thereof to cause added amt. of Si(NR5)2 groups of II per mol silanol group of I 0.5-10 mol. The dispersions are useful for manuf. of release agents and coating materials (no data). **Octamethylcyclotetrasiloxane** 700, OH-terminated **dimethylpolysiloxane** 230, and **surface methylvinylpolysiloxane** and 2.0 g dimethylbis(dimethylamino)silane and heated to give a dispersion contg. 23% **dimethylpolysiloxane** with wt.-av. mol. wt. 553000 and av. d.p. 7500, 100 g of which was mixed with 1.5 g methyltris(Me Et ketoxime)silane and 0.1 g dibutyltin dilaurate and cured at room temp. to give a rubber sheet showing hardness 43 and elongation 450%.

IT **7631-86-9, Silica**, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (filler; manuf. of dispersions of **diorganopolysiloxanes** with high d.p. for silicone rubber contg.)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **176035-63-5P**
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (rubber; manuf. of dispersions of **diorganopolysiloxanes** with high d.p. for)

RN 176035-63-5 HCAPLUS

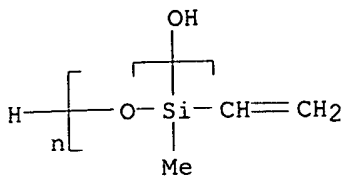
CN Silanediimine, hexamethyl-, polymer with .alpha.-hydro-.omega.-hydroxypoly[oxy(dimethylsilylene)], .alpha.-hydro-.omega.-hydroxypoly[oxy(ethenylmethylsilylene)] and octamethylcyclotetrasiloxane (9CI) (CA INDEX NAME)

CM 1

CRN 157395-90-9

CMF (C3 H6 O Si)n H2 O

CCI PMS

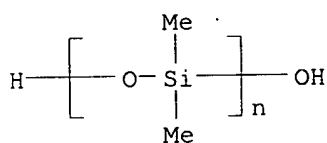


CM 2

CRN 31692-79-2

CMF (C2 H6 O Si)n H2 O

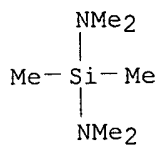
CCI PMS



CM 3

CRN 3768-58-9

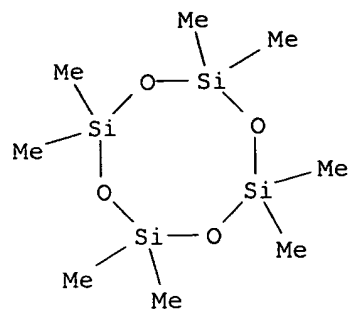
CMF C6 H18 N2 Si



CM 4

CRN 556-67-2

CMF C8 H24 O4 Si4



L49 ANSWER 31 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 1995:547763 HCAPLUS

DN 123:22140

TI One-component electrophotographic magnetic developer and image formation

IN Yoshida, Satoshi; Kukimoto, Tsutomu; Urawa, Motoo

PA Canon Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07064349	A2	19950310	JP 1993-232270	19930826
	JP 3108842	B2	20001113		

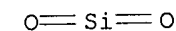
AB The developer with wt. av. particle size 4-10 .mu.m and abs. value of two-component triboelectricity for Fe powders (x) 40-100 .mu.C/g comprises toner particles contg. a binder resin 100, magnetic powders 5-60, and black Ti oxide 0.2-20 parts and **hydrophobic** silicic acid fine powders. Images are formed by developing using a support having the developer **layer** coated with a resin **layer** contg. an elec. conducting fine particles, where x/y (y = abs. value of triboelectricity measured by suction method on the support) 2.5-15. The developer showed high resoln. and repeating durability.

IT 7631-86-9, Silica, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(one-component electrophotog. magnetic developer contg. black titanium oxide and **hydrophobic** silicic acid with high resoln. and its manuf.)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 9016-00-6, Poly(dimethylsiloxane)

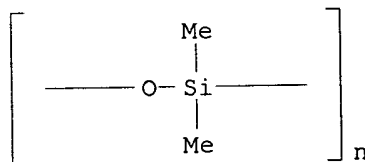
31900-57-9, Dimethylsilanediol homopolymer

RL: TEM (Technical or engineered material use); USES (Uses)

(**silica surface**-treated with; one-component electrophotog. magnetic developer contg. black titanium oxide and **hydrophobic** silicic acid with high resoln. and its manuf.)

RN 9016-00-6 HCAPLUS

CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)



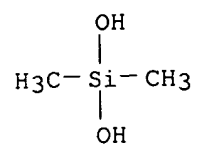
RN 31900-57-9 HCAPLUS

CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

5/19/02 09/841,453

CRN 1066-42-8
CMF C2 H8 O2 Si



L49 ANSWER 35 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 1994:458428 HCAPLUS

DN 121:58428

TI Spreading of Thin **Films** of Ordered Nonionic **Surfactants**
. Origin of the Stepped Shape of the Spreading Precursor

AU Tiberg, Fredrik; Cazabat, Anne-Marie

CS College de France, Paris, 75 231, Fr.

SO Langmuir (1994), 10(7), 2301-6

CODEN: LANGD5; ISSN: 0743-7463

DT Journal

LA English

AB The authors report on the phenomenon of **surface**-induced self-assembly, obsd. as nonionic **siloxane poly** (ethylene oxide) **surfactants** spread at the solid-air interface. Microdroplets of pure **surfactants** are put on high- and low-energy solid **surfaces** and the shape evolution is monitored by ellipsometry. Spreading, if any, occurs through an autophobic thin precursor **film** growing at the foot of the nonwetting main drop. Strikingly different shapes of the precursors are obsd., depending on the interfacial properties of the substrate. No specific structure appears as the **surfactants** spread over high-energy **surfaces**. On low-energy **surfaces**, however, these mols. assemble **into** a densely packed bilayer with long-range intrinsic order. Stratified or "stepped" precursors are seen on medium-energy **surfaces**. The profile of the precursor is the outcome of the relative strengths of the substrate-**surfactant** and **surfactant-surfactant** interaction potentials as well as the mol. dynamic picture within the **layer** precursor. The area covered by the spreading **film** always increases linearly with time, yielding apparent diffusion coeffs. that are sensitive to **surfactant** compn., **surface** chem., and perhaps most importantly to the atm. humidity. The ability of the **surfactants** to form dense bilayers is related to the geometry of the mol., while the sensitivity to humidity is caused by specific interactions between the ethylene oxide (I) part of the **surfactants** and water. Spreading on low-energy **surfaces** is obsd. for **surfactants** with **trisiloxane hydrophobes** and relatively short I chains, but not for corresponding hydrocarbon **surfactants**. This is argued to be the consequence of the relative bulkiness of the **trisiloxane hydrophobe** allowing space for the hydrophilic ethylene oxide chain and the high d. of external **hydrophobic** Me groups on the **siloxane** backbone. The conjunction of these properties may explain the "superspreading" ability of these **trisiloxane surfactants**.

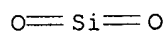
IT 7631-86-9, Silica, properties

RL: PRP (Properties)

(**surface** of, **hydrophobizing** agent-modified,
spreading of **siloxane poly**(ethylene oxide)
surfactants on)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L49 ANSWER 34 OF 39 HCAPLUS COPYRIGHT 2002 ACS
 AN 1994:586793 HCAPLUS
 DN 121:186793
 TI Liquefiable cosmetic powders
 IN Tanaka, Yoichiro
 PA Kosei Kk, Japan
 SO Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06166611	A2	19940614	JP 1992-321946	19921201
OS	MARPAT 121:186793				

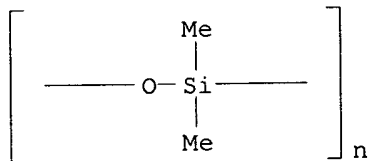
AB Cosmetic powders, which are liquefied when applied to the skin, contain **hydrophobic silica** with **surface area** .gtoreq.80 m²/g 0.1-7, fluoro compd.-coated cosmetic powders 1-50, oily substances 30-40, and aq. substances 30-90 wt.%. The cosmetics have good skin affinity and emollient property. Asahigard AG 530 (fluoro compd.)-treated cosmetic powders (titan, talc, mica, and pigment) 17.0, trimethylsiloxyl group-contg. **silica** (**surface area** 325 m²/g) 3.0, liq. paraffin 3.0, microcrystn. wax 15.0, di-Me **polysiloxane** supported on acrylate **copolymer** 20.0, and H₂O 42.0 parts were mixed to give make-up powders.

IT 9016-00-6, Poly[oxy(dimethylsilylene)] 31900-57-9
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(cosmetic powders contg. fluoro compd.-coated powders and **hydrophobic silica** and, liquefiable)

RN 9016-00-6 HCAPLUS

CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)



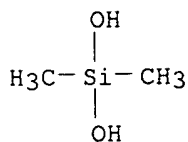
RN 31900-57-9 HCAPLUS

CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1066-42-8

CMF C2 H8 O2 Si



5/19/02 09/841,453

IT 7631-86-9, Silica 7631-86-9D, Silica
, trimethylsiloxy group-contg.
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(hydrophobic, liquefiable cosmetic powders contg. fluoro
compd.-treated powders and)
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L49 ANSWER 33 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 1994:663321 HCAPLUS

DN 121:263321

TI Cosmetic powders containing silica and fluorine compound-coated powders

IN Tanaka, Yoichiro; Nakabayashi, Jiro; Kuribayashi, Satsuki; Hayashi, Kimie; Takarada, Takeshi

PA Kosei Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06211620	A2	19940802	JP 1993-19232	19930112
	JP 3219886	B2	20011015		

OS MARPAT 121:263321

AB Stable cosmetic powders contain **hydrophobicized SiO₂** (surface area .gtoreq.80 m²/g) 0.1-7, F compd.-coated cosmetic powders 1-50, oily ingredients 0.5-40, aq. ingredients 30-90, and unstable active ingredients 0.001-10 wt.%. The prens. liquefied after spreading on the skin. A cosmetic powder contg. Cab-O-Sil TS 530 (trimethylsiloxylated SiO₂) 5.0, resorcin 0.5, 1,3-butylene glycol 5.0, glycerin 5.0, lactic acid 0.1, Na lactate 0.1, antiseptic 0.2, Asahiguard AG 530-treated talc 5.0, Asahiguard AG 530-treated nylon powder 10.0, starch fatty acid ester 2.3, squalane 0.2, and H₂O to 100 wt.% was kept at 40.degree. for 6 mo to show 98% residual resorcin.

IT 7631-86-9, Silica

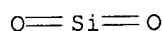
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(**hydrophobic**; stable cosmetic powders contg.

hydrophobicized silica and fluorine-coated powders and other ingredients)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 31900-57-9

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(stable cosmetic powders contg. **hydrophobicized silica** and fluorine-coated powders and other ingredients)

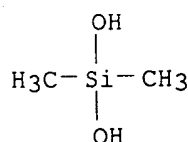
RN 31900-57-9 HCAPLUS

CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1066-42-8

CMF C2 H8 O2 Si



L49 ANSWER 32 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 1995:521093 HCAPLUS

DN 123:94292

TI Retention characteristics of **octadecylsiloxane**-bonded **silica** and porous polymer particle-loaded membranes for solid-phase extraction

AU Mayer, Mary L.; Poole, Salwa K.; Poole, Colin F.

CS Department of Chemistry, Wayne State University, Detroit, MI, 48202, USA

SO J. Chromatogr., A (1995), 697(1 + 2), 89-99

CODEN: JCRAEY

DT Journal

LA English

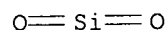
AB Forced-flow planar chromatog. was used to det. the kinetic and retention properties of an **octadecylsiloxane**-bonded, **silica**-based, particle-loaded membrane used for solid-phase extn. The sorbent was heavily loaded with bonded phase resulting in a small intraparticle porosity. The large plate height and flow resistance indicates a heterogeneous particle size distribution for the membrane with a significant fraction of below av. size particles. The **hydrophobicity** and silanophilic indexes and system consts. in the solvation parameter model indicate similar retention properties to a common **octadecylsiloxane**-bonded **silica** cartridge sorbent under identical mobile phase conditions. The dimensional instability of a porous polymer particle-loaded membrane prevented its evaluation by forced-flow planar chromatog. by using the overpressured development chamber. Breakthrough vols. were detd. for the porous polymer membrane under typical sample processing conditions for a no. of solutes with varied properties and fitted to a solvation parameter model. A comparison to data previously obtained for an **octadecylsiloxane**-bonded, **silica**-based, particle-loaded membrane (Bakerbond) indicated that ease of cavity formation favors retention by the **octadecylsiloxane**-bonded **silica** particle-loaded membrane for non-polar and weakly polar analytes compared to the porous polymer particle-loaded membrane. Significantly larger breakthrough vols., however, are obtained on the porous polymer particle-loaded membrane for polar analytes. The porous polymer sorbent competes more effectively with H₂O in dipole-type interactions and as a H-bond acid. A solvent effect is suggested speculatively as the origin of the porous-polymer sorbent's favorable retention of H-bond bases compared to the **octadecylsiloxane**-bonded, **silica**-based, material.

IT 7631-86-9, **Silica**, properties

RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); ANST (Analytical study); PROC (Process)

(retention characteristics of **octadecylsiloxane**-bonded **silica** and porous polymer particle-loaded membranes for solid-phase extn.)

RN 7631-86-9 HCAPLUS

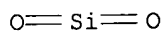
CN **Silica** (7CI, 8CI, 9CI) (CA INDEX NAME)IT 7631-86-9D, **Silica**, octadecylated

RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); ANST (Analytical study); PROC (Process)

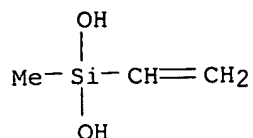
(surface; retention characteristics of **octadecylsiloxane**-bonded **silica** and porous polymer

L49 ANSWER 28 OF 39 HCAPLUS COPYRIGHT 2002 ACS
 AN 1996:446334 HCAPLUS
 DN 125:88920
 TI Silicone rubber compositions
 IN Takahashi, Masaharu; Yoshino, Masachika; Uno, Takao
 PA Shinetsu Chem Ind Co, Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08100125	A2	19960416	JP 1994-261225	19940930
	JP 3191579	B2	20010723		
AB	The title compns. with low crepe hardening and good storage stability in the state of U-stock (i.e., before adding vulcanizing agents) comprise (A) organopolysiloxanes $R_1nSiO(4-n)/2$ [R_1 = (substituted) monovalent hydrocarbon; $n = 1.98-2.02$] 100, (B) hydrophobic aerosil SiO₂ with C adsorption .gtoreq.2% and hydrophobic degree .gtoreq.50 vol.% 10-70, and (C) low d.p. Si compds. contg. C1-10 silanol groups 0-3 parts. Thus, a compn. comprising 100 parts gum-type organopolysiloxane with av. d.p. .apprx.8000 and unblocked terminal chain ratio 8% composed of SiMe ₂ O 99.95, Me vinyl siloxane 0.02, and di-Me vinyl siloxane 0.025 mol.%, 45 parts aerosil SiO₂ surface-treated with octamethylcyclotetrasiloxane , and 0.5 part 1,3- dihydroxytetramethyldisiloxane was kneaded at 180.degree. and its Williams plasticity no. was measured. The compn. was then press-cured at 120.degree. and post-cured at 200.degree. to give test pieces.				
IT	7631-86-9, Silica , uses RL: MOA (Modifier or additive use); USES (Uses) (hydrophobic , aerosil; silicone rubber compns. contg. hydrophobic aerosil silica and silanol group-contg. Si compds. with good storage stability)				
RN	7631-86-9 HCAPLUS				
CN	Silica (7CI, 8CI, 9CI) (CA INDEX NAME)				

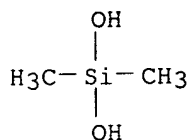


IT 155665-02-4D, Dimethylsilanediol-methylvinylsilanediol copolymer, dimethylvinylsilyl terminated
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (rubber; silicone rubber compns. contg. **hydrophobic** aerosil **silica** and silanol group-contg. Si compds. with good storage stability)
 RN 155665-02-4 HCAPLUS
 CN Silanediol, dimethyl-, polymer with ethenylmethylsilanediol (9CI) (CA INDEX NAME)
 CM 1
 CRN 3959-12-4
 CMF C3 H8 O2 Si



CM 2

CRN 1066-42-8
CMF C2 H8 O2 Si

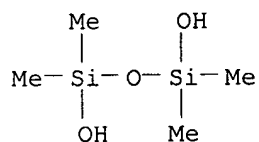


IT 1118-15-6, 1,3-Dihydroxytetramethyldisiloxane
178922-38-8

RL: MOA (Modifier or additive use); USES (Uses)
(silicone rubber compns. contg. **hydrophobic** aerosil
silica and silanol group-contg. Si compds. with good storage
stability)

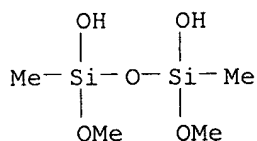
RN 1118-15-6 HCAPLUS

CN 1,3-Disiloxanediol, 1,1,3,3-tetramethyl- (8CI, 9CI) (CA INDEX NAME)



RN 178922-38-8 HCAPLUS

CN 1,3-Disiloxanediol, 1,3-dimethoxy-1,3-dimethyl- (9CI) (CA INDEX NAME)



L61 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2002 ACS

AN 1994:581987 HCAPLUS

DN 121:181987

TI Silica/silicone nanocomposite films: a new concept in corrosion protection

AU Gentle, Theresa E.; Baney, Ronald H.

CS Dow Corning Corp., Midland, MI, 48686, USA

SO Mater. Res. Soc. Symp. Proc. (1992), 274 (Submicron Multiphase Materials), 115-19

CODEN: MRSPDH; ISSN: 0272-9172

DT Journal

LA English

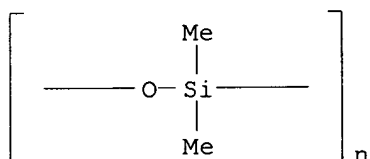
AB Thin films of silsesquioxane, $(\text{HSiO}_3/2)_n$, were applied to aluminum panels and to CMOS microelectronic circuit surfaces by spin or dip coating org. solns. of the silsesquioxane. **Nanoporous silica** was obtained by oxidn. of the silsesquioxane. These **nanoporous silica** films were then vacuum infiltrated with various viscosities of poly(**dimethylsiloxanes**) (PDMS) to form **hydrophobic** nanocomposites. The nanocomposite films were shown to provide superior hermetic protection against salt fog exposure when compared to PDMS and silica films alone. The composite films were characterized by FTIR and optical microscopy. FTIR spectra showed that the silica served as a skeletal framework holding the **hydrophobic** PDMS in place and preventing loss of adhesion. This is in contrast to PDMS films alone in which blistering of the film from the substrate can occur, thus, allowing ions and moisture to reach the surface and corrosion to take place.

IT 9016-00-6, Dimethylsiloxane 31900-57-9

RL: TEM (Technical or engineered material use); USES (Uses)
(silica-silicone nanocomposite films for corrosion protection)

RN 9016-00-6 HCAPLUS

CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)



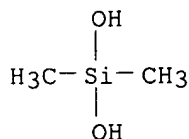
RN 31900-57-9 HCAPLUS

CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

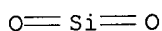
CM 1

CRN 1066-42-8

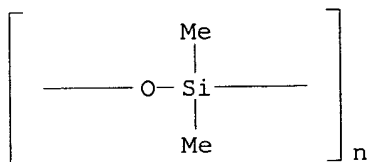
CMF C2 H8 O2 Si



L49 ANSWER 27 OF 39 HCAPLUS COPYRIGHT 2002 ACS
 AN 1996:492635 HCAPLUS
 DN 125:144748
 TI **Poly(dimethylsiloxane) chains at a silica surface**
 AU Litvinov, V. M.
 CS PAC-MC, DSM Research B. V., 6160 MD, Neth.
 SO Organosilicon Chem. II, [Muench. Silicontage], 2nd (1996), Meeting Date 1994, 779-814. Editor(s): Auner, Norbert; Weis, Johann. Publisher: VCH, Weinheim, Germany.
 CODEN: 63DJA3
 DT Conference; General Review
 LA English
 AB A review with 52 refs. discussed solid-state NMR studies of mol. motions and network structure in elastomeric **poly(dimethylsiloxane)** (PDMS) filled with hydrophilic and **hydrophobic Aerosil (silica)** and compared with the results provided by other methods. ✓
 IT **7631-86-9, Silica, uses**
 RL: NUU (Other use, unclassified); USES (Uses)
 (dynamics of elastomeric **poly(dimethylsiloxane)** chains at a **silica surface**)
 RN 7631-86-9 HCAPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **9016-00-6, Di-Me siloxane, SRU 31900-57-9, Dimethylsilanediol homopolymer**
 RL: PRP (Properties)
 (rubber; dynamics of elastomeric **poly(dimethylsiloxane) chains at a silica surface**)
 RN 9016-00-6 HCAPLUS
 CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)

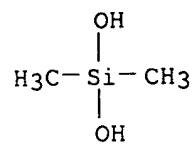


RN 31900-57-9 HCAPLUS
 CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1066-42-8
 CMF C2 H8 O2 Si

5/19/02 09/841,453



L63 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:114639 HCAPLUS

DN 136:295409

TI SiOH-Functionalized Polystyrene Latexes. A Step toward the Synthesis of Hollow Silica Nanoparticles

AU Tissot, I.; Reymond, J. P.; Lefebvre, F.; Bourgeat-Lami, E.

CS LCPP, LGPC, and LCOMS, CNRS, CPE, Villeurbanne, 69616, Fr.

SO Chemistry of Materials (2002), 14(3), 1325-1331

CODEN: CMATEX; ISSN: 0897-4756

PB American Chemical Society

DT Journal

LA English

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 57

AB Following a previous work (Tissot, I.; Lefebvre, F.; Bourgeat-Lami, E. Macromols. 2001, submitted for publication), polystyrene latex particles contg. silanol groups have been synthesized in emulsion polymn. using 3-(trimethoxysilyl)propyl methacrylate (MPS) as a functional comonomer. The surface properties of the functionalized polymer latexes were investigated in depth using electrophoretic measurements and the soap titrn. method. Both techniques gave qual. evidence of the presence of SiOH groups at the particles surface. The concn. of surface charges was quantified by potentiometric and conductometric titrns. As expected, the surface charge d. increased with an increase in the pH and with an increase in the MPS concn. Because of the presence of silanol groups at the particles surface, no loss of colloidal stability was obsd. when the functional polystyrene latexes were suspended into ethanol/water mixts. The silanol groups were then converted into a 20 nm thick silica layer using a procedure derived from the Stoeber method (Stoeber, W.; Fink, A.; Bohn, E. J. Colloid Interface Sci. 1968, 26, 62). Hollow silica nanoparticles were finally generated by thermal degrdn. of the templating org. latex core. This work illustrates the detg. role of interfaces in the structuring of org.-inorg. colloids.

Zeta potential

(SiOH-functionalized polystyrene latexes. a step toward synthesis of hollow silica nanoparticles)

IT 26949-20-2P, Styrene-3-(trimethoxysilyl)propyl methacrylate copolymer
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(SiOH-functionalized polystyrene latexes. a step toward synthesis of hollow silica nanoparticles)

IT 7631-86-9P, Silica, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (SiOH-functionalized polystyrene latexes. a step toward synthesis of hollow silica nanoparticles)

RE

(1) Arkles, B; Chemtech 1977, V7, P766 HCAPLUS

(2) Arshady, R; Microspheres Microcapsules & Liposomes 1999, V2, P11

(3) Arshady, R; Microspheres Microcapsules & Liposomes 1999, V1, P126

(4) Bamnolker, H; J Mater Sci Lett 1997, V16, P14125

(5) Barrett, E; J Am Chem Soc 1951, V73, P373 HCAPLUS

(6) Blackley, D; Science and Technology of Polymer Colloids, NATO ASI Series E68 1983, P203 HCAPLUS

(7) Bolt, G; J Phys Chem 1957, V61, P1166 HCAPLUS

(8) Bourgeat-Lami, E; Dendrimers, Assemblies and Nanocomposites, in press V5

(9) Bourgeat-Lami, E; J Colloid Interface Sci 1999, V210, P281 HCAPLUS

(10) Brandriss, S; Langmuir 1993, V9, P1232 HCAPLUS

(11) Brunauer, S; J Am Chem Soc 1938, V60, P309 HCAPLUS

(12) Caris, C; Br Polym J 1989, V21, P133 HCAPLUS

(13) Caruso, F; Adv Mater 2001, V13, P11 HCAPLUS

(14) Caruso, F; Chem Mater 1999, V11, P3309 HCAPLUS

(15) Caruso, F; Chem Mater 2001, V13, P109 HCAPLUS

- (16) Caruso, F; J Am Chem Soc 1998, V120, P8523 HCAPLUS
- (17) Caruso, R; Chem Mater 2001, V13, P400 HCAPLUS
- (18) Caruso, R; Chem Mater 2001, V13, P400 HCAPLUS
- (19) Corcos, F; Colloid Polym Sci 1999, V277, P1142 HCAPLUS
- (20) Fleming, M; Chem Mater 2001, V13, P2210 HCAPLUS
- (21) Garg, A; Langmuir 1988, V4, P38 HCAPLUS
- (22) Graillat, C; Langmuir 1991, V7, P872 HCAPLUS
- (23) Hall, S; Langmuir 2000, V16, P1454 HCAPLUS
- (24) Huang, C; J Mater Res 1995, V10, P1327 HCAPLUS
- (25) Hunter, R; Fundations of Colloid Science 1986, V1
- (26) Hunter, R; Fundations of Colloid Science 1986, P380
- (27) Hunter, R; Fundations of Colloid Science 1986, P557
- (28) Imhof, A; Langmuir 2001, V17, P3579 HCAPLUS
- (29) Jang, M; J Polym Sci, Polym Chem Ed 1976, V14, P2089
- (30) Kawaguchi, H; J Appl Polym Sci 1981, V26, P2015 HCAPLUS
- (31) Kawahashi, N; J Colloid Interface Sci 1990, V143, P103
- (32) Kawahashi, N; J Colloid Interface Sci 1990, V138, P534 HCAPLUS
- (33) Kratochvil, S; Adv Ceram Mater 1987, V2, P798 HCAPLUS
- (34) Liz-Marzan, L; J Chem Soc, Chem Commun 1996, P731
- (35) Liz-Marzan, L; Langmuir 1996, V12, P4329 HCAPLUS
- (36) MacLachlan, M; Adv Mater 2000, V12, P675 HCAPLUS
- (37) Maron, S; J Colloid Interface Sci 1954, V9, P89 HCAPLUS
- (38) Ohmori, M; J Colloid Interface Sci 1993, V160, P228
- (39) Ozin, G; Adv Mater 1992, V10, P612
- (40) Parks, G; Chem Rev 1965, V65, P177 HCAPLUS
- (41) Percy, M; Langmuir 2000, V16, P6913 HCAPLUS
- (42) Philipse, A; Langmuir 1994, V10, P4451 HCAPLUS
- (43) Philipse, A; Langmuir 1994, V10, P92 HCAPLUS
- (44) Piirma, I; J Colloid Interface Sci 1980, V74, P90 HCAPLUS
- (45) Sanchez, C; Chem Mater 2001, V13, P3061 HCAPLUS
- (46) Stober, W; J Colloid Interface Sci 1968, V26, P62
- (47) Tissot, I; Macromolecules 2001, V34, P5737 HCAPLUS
- (48) Tissot, I; Macromolecules, submitted for publication 2001
- (49) Twigt, F; Eur Polym J 1991, V27, P939 HCAPLUS
- (50) van Streun, K; Eur Polym J 1991, V27, P931 HCAPLUS
- (51) Velikov, K; Langmuir 2001, V17, P4779 HCAPLUS
- (52) Vijayendran, B; J Appl Polym Sci 1979, V23, P733 HCAPLUS
- (53) Von Werne, T; J Am Chem Soc 1999, V121, P7409 HCAPLUS

L49 ANSWER 25 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:557783 HCAPLUS

DN 127:183308

TI Electrophotographic toner containing no charge controller

IN Arakawa, Takeshi; Inoue, Masatake; Aso, Hiroshi; Fujisawa, Ryo

PA Mita Industrial Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

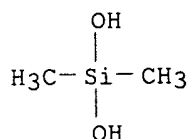
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09211885	A2	19970815	JP 1996-16000	19960131
AB	The toner contg. no charge controller is surface -treated with 0.5-2.0% (on total toner) SiO ₂ and Al ₂ O ₃ fine particles with wt. ratio 3:1-1:3 in which (1) .gtoreq.70% of the SiO₂ surface is hydrophobized or (2) .gtoreq.50% of the SiO₂ surface is hydrophobized to show central grain size D50 20-100 nm and vol. fraction of .gtoreq.500 nm particles 1-5%. The toner shows high charge under high-temp. and humid condition and gives low-fog images.				
IT	31900-57-9 , Dimethylsilanediol homopolymer RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (electrophotog. toner contg. no charge controller surface-hydrophobized with silica and alumina particles)				
RN	31900-57-9 HCAPLUS				
CN	Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)				

CM 1

CRN 1066-42-8

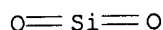
CMF C2 H8 O2 Si



IT **7631-86-9**, Silica, processes
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (electrophotog. toner contg. no charge controller **surface-hydrophobized** with **silica** and alumina particles)

RN **7631-86-9** HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

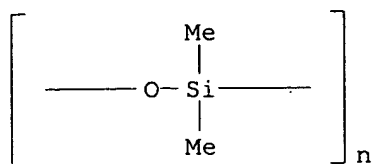


IT **9016-00-6**, Dimethyl siloxane
 RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(hydrophobizing agent; electrophotog. toner contg. no charge
controller surface-hydrophobized with
silica and alumina particles)

RN 9016-00-6 HCAPLUS

CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)



L49 ANSWER 22 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 1998:300607 HCAPLUS

DN 129:5533

TI Preparation of **hydrophobic** organosilicate-modified
silica gels

IN Burns, Gary Thomas; Hahn, James Richard; Reese, Clifford Carlton

PA Dow Corning Corporation, USA

SO U.S., 8 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

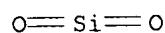
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5750610	A	19980512	US 1997-805102	19970224
	WO 9837015	A1	19980827	WO 1998-US3123	19980218
	AU 9862809	A1	19980909	AU 1998-62809	19980218
	EP 963344	A1	19991215	EP 1998-905111	19980218
	R: BE, DE, ES, FR, GB, IT				
	BR 9807723	A	20000215	BR 1998-7723	19980218
	JP 2000512972	T2	20001003	JP 1998-536828	19980218
	TW 381065	B	20000201	TW 1998-87102454	19980220
PRAI	US 1997-805102	A	19970224		
	WO 1998-US3123	W	19980218		

AB The title method comprises two steps, where in the first step an organosilicate-modified silica hydrosol is heat treated in the presence of a strong mineral acid at a pH less than about pH 1 to form an organosilicate-modified silica hydrogel. In the second step the organosilicate-modified silica hydrogel is contacted with an organosilicon compd. in the presence of a catalytic amt. of a strong acid to effect **hydrophobing** of the organosilicate-modified **silica** hydrogel thereby forming a **hydrophobic** organosilicate-modified **silica** hydrogel having a **surface** area within a range of about 100-750 m²/g as measured in the dry state. In a preferred method the **hydrophobic** organosilicate-modified **silica** gel is contacted with a sufficient quantity of a water-immiscible org. solvent to convert the **hydrophobic** organosilicate-modified **silica** hydrogel into a **hydrophobic** organosilicate-modified **silica** organogel. The silica gels are useful in silicone rubber compns.

IT 7631-86-9D, Silica, organosilicate-modified, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrosols; prepn. of **hydrophobic** organosilicate-modified
silica gels)

RN 7631-86-9 HCAPLUS

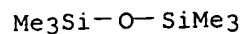
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



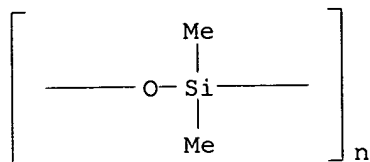
IT 107-46-ODP, Hexamethyldisiloxane, reaction products with organosilicate-modified **silica** gel
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(prepn. of **hydrophobic** organosilicate-modified **silica** gels)

RN 107-46-0 HCAPLUS

CN Disiloxane, hexamethyl- (8CI, 9CI) (CA INDEX NAME)



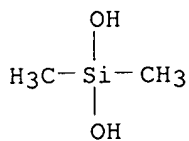
IT 9016-00-6, Polydimethylsiloxane 31900-57-9,
 Polydimethylsiloxane
 RL: POF (Polymer in formulation); USES (Uses)
 (rubber; prepn. of **hydrophobic** organosilicate-modified
 silica gels)
 RN 9016-00-6 HCAPLUS
 CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)



RN 31900-57-9 HCAPLUS
 CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1066-42-8
 CMF C2 H8 O2 Si



L49 ANSWER 10 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:364672 HCAPLUS

DN 133:108617

TI **Hydrophobic SiO₂ aerogels prepared with polyethoxydisiloxanes**

AU Deng, Zhong-Sheng; Wei, Jian-Dong; Wu, Ai-Mei; Bao, Yu-Ping; Wang, Jue; Shen, Jun; Zhou, Bin; Chen, Ling-Yan

CS Pohl Inst. Solid State Phys., Tongji Univ., Shanghai, 200092, Peop. Rep. China

SO Wuji Cailiao Xuebao (2000), 15(2), 381-384
CODEN: WCXUET; ISSN: 1000-324X

PB Kexue Chubanshe

DT Journal

LA Chinese

AB **Hydrophobic SiO₂ aerogels** were produced by the **surface** modification of alc.-gels prepd. via sol-gel process using **polyethoxydisiloxanes** (E-40) as the precursor and followed by ethanol supercrit. drying. The structure of the modified silica aerogels was a **silica** matrix produced by hydrolysis and condensation of **polyethoxydisiloxanes**. Si-CH₃ was modified on the **surface** of the **silica** matrix. The pore size decreased from 23.1 nm to 18.2 nm, the sp. **surface** area increased from 477 m² g⁻¹ to 563 m² g⁻¹ and the water vapor adsorption decreased from 0.04 to 0.0012 (wt. ratio) after the **surface** modification of **silica** aerogels. The existence of Si-CH₃ was obsd. using IR spectra.

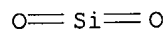
IT 7631-86-9P, **Silica**, preparation

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(hydrophobic SiO₂ aerogels prepd. with **polyethoxydisiloxanes**)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L49 ANSWER 12 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:69383 HCAPLUS

DN 132:158095

TI Codeposition of hydrophilic and **hydrophobic silica**
with copper from acid copper sulfate baths

AU Terzieva, V.; Fransaer, J.; Celis, J. -P.

CS Faculty of Chemistry, University of Sofia, Sofia, Bulg.

SO Journal of the Electrochemical Society (2000), 147(1), 198-202

CODEN: JESOAN; ISSN: 0013-4651

PB Electrochemical Society

DT Journal

LA English

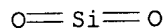
AB The influence of the **hydrophobicity** of silicaparticles on the electrodeposition of Cu-SiO₂ composite coatings from acid
copper sulfate solns. on rotating disk electrodes was studied. Spherical,
nearly monodisperse hydrophilic and **hydrophobic silica**particles were used. The hydrophilic silica particles were prepd. by the
Stober process. These particles were made **hydrophobic** by a
treatment with oligodimethyl siloxane-.alpha.,.omega.-diol. The
effect of cetyltrimethylammonium hydrogen sulfate (CTAHS) and sodium
1-dodecanesulfonate on the codeposition behavior was studied. Hydrophilic
silica did not codeposit from **surfactant**-free nor from
surfactant-contg. acid copper sulfate solns., but up to 4% (= 14
vol.%) of **hydrophobic silica** codeposited from solns.contg. 15 g/L of silica particles and 10-4M CTAHS. The codeposition rate
of **hydrophobic silica** slowly decreased with time. The
amt. of codeposited particles was highest for a c.d. of 5 A/dm² and a
rotation speed of 400 rpm.

IT 7631-86-9, Silica, properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)(codeposition of hydrophilic and **hydrophobic silica**
with copper from acid copper sulfate baths)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 37373-11-8

RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)(electrodeposition on rotating disk electrodes in sulfate bath contg.
surfactant and influence of **hydrophobicity** of
silica particles)

RN 37373-11-8 HCAPLUS

CN Copper alloy, base, Cu, SiO₂ (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cu	7440-50-8
SiO ₂	7631-86-9

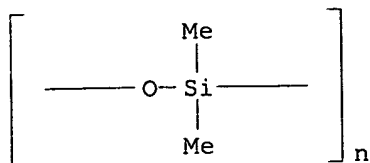
IT 9016-00-6, Dimethylsilanediol homopolymer, SRU 31900-57-9
, Dimethylsilanediol homopolymerRL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(in **hydrophobic** treatment of **silica** for
electrodeposition of copper-silica composites on rotating

5/19/02 09/841,453

disk electrodes in sulfate bath)

RN 9016-00-6 HCAPLUS

CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)



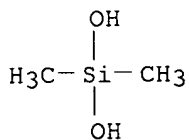
RN 31900-57-9 HCAPLUS

CN Silanediol, dimethyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1066-42-8

CMF C2 H8 O2 Si



L49 ANSWER 9 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:493611 HCAPLUS

DN 133:109644

TI Cosmetic compositions containing **surface-hydrophobized silica**-coated metal oxide particles, sol of silica-coated metal oxide, and processes for producing these

IN Wada, Koichi; Ishii, Nobuaki; Irie, Mitsuharu; Sekiguchi, Kazuo; Takama, Michihiro

PA Showa Denko K. K., Japan

SO PCT Int. Appl., 95 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000042112	A1	20000720	WO 2000-JP88	20000111
	EP 1167462	A1	20020102	EP 2000-900179	20000111
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				

PRAI	JP 1999-4613	A	19990111
	US 1999-117551P	P	19990128
	JP 1999-312318	A	19991102
	WO 2000-JP88	W	20000111

OS MARPAT 133:109644

AB Disclosed are a cosmetic prepn. contg. silica-coated metal oxide particles whose **surface** has been treated with a **hydrophobizing** agent; particles obtained by treating metal oxide particles having a specific ratio regarding IR absorption spectrum intensity and a specific refractive index with a **hydrophobizing** agent, and a process for producing the particles; and a sol of a silica-coated metal oxide from which the particles are obtained, and a process for producing the sol. An UV-screening cosmetic prepn. giving an excellent feeling of transparency can be obtained in which the particles are satisfactorily dispersed. A silica-coated titanium oxide particles were prepd. and further coated with dimethyldiethoxysilane to obtain **surface-hydrophobized silica**-coated titanium oxide particles. The obtained particles were combined with other ingredients to make a cosmetic foundation.

IT 7631-86-9, Silica, biological studies 9016-00-6, Dimethylpolysiloxane 32129-24-1, Diphenylsiloxane

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(cosmetic compns. contg. **surface-hydrophobized silica**-coated metal oxide particles or **silica**-coated metal oxide sol)

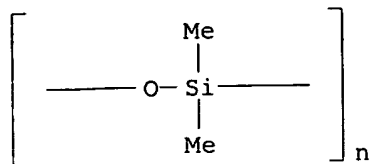
RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

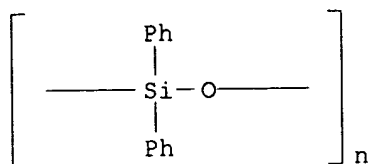
RN 9016-00-6 HCAPLUS

CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)



RN 32129-24-1 HCAPLUS

CN Poly[oxy(diphenylsilylene)] (9CI) (CA INDEX NAME)



L49 ANSWER 5 OF 39 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:933873 HCAPLUS

DN 136:55089

TI Semiconducting silicone rubber compositions for the manufacture of developing rollers of printers or copiers with good print property and freedom from blister

IN Murano, Toshiro; Uemura, Katsuya

PA Oki Data Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 15 pp.

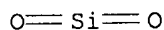
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001356586	A2	20011226	JP 2000-174990	20000612
AB	The rollers have a core which is surfaced with a semiconducting silicone rubber layer for contacting the nonmagnetic one component developing agent (toner), where the rubber layer contains spherical particles of silicone elastomer having av. diam. 1-30 .mu.m, elec. conductors and hydrophobic silica having hydrophobicity of .gtoreq.70%. Thus, kneading a silicone compd. having 99.85 mol% dimethylsiloxane units and 0.15 mol% methylvinylsiloxane units, 100, with KMP 594 (silicone rubber microspheres; av. diam. 3-10 .mu.m) 130, dimethyldichlorosilane- surface treated silica (BET value 380 m2/g, diam. 7 .mu.m, hydrophobicity 70) 20, acetylene black 13 and 2,5-dimethyl-2,5-di(tert-butyl-peroxy)hexane 1.6 parts, press molding, vulcanizing and buffing gave a roller.				
IT	7631-86-9, Silica , properties RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses) (Aerosil EPR 976, hydrophobically treated fillers; semiconducting silicone rubber compns. for manuf. of developing rollers of printers or copiers with good print property and freedom from blister)				
RN	7631-86-9 HCAPLUS				
CN	Silica (7CI, 8CI, 9CI) (CA INDEX NAME)				



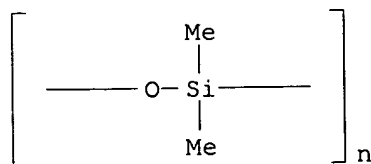
IT 9016-00-6, TSF 451

RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)

(**hydrophobicizing** agents; semiconducting silicone rubber compns. for manuf. of developing rollers of printers or copiers with good print property and freedom from blister)

RN 9016-00-6 HCAPLUS

CN Poly[oxy(dimethylsilylene)] (8CI, 9CI) (CA INDEX NAME)

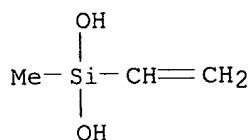


IT 155665-02-4, Dimethylsilanediol-methylvinylsilanediol copolymer
 RL: DEV (Device component use); POF (Polymer in formulation); PRP
 (Properties); USES (Uses)
 (rubbers; semiconducting silicone rubber compns. for manuf. of
 developing rollers of printers or copiers with good print property and
 freedom from blister)

RN 155665-02-4 HCAPLUS
 CN Silanediol, dimethyl-, polymer with ethenylmethylsilanediol (9CI) (CA
 INDEX NAME)

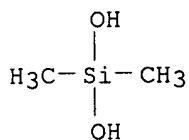
CM 1

CRN 3959-12-4
 CMF C3 H8 O2 Si



CM 2

CRN 1066-42-8
 CMF C2 H8 O2 Si



L34 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2002 ACS

AN 1975:580801 HCAPLUS

DN 83:180801

TI Hardenable materials producing elastomers, based on poly(
diorganosiloxanes)

PA Elektroschmelzwerk Kempten G.m.b.H., Ger.

SO Fr. Demande, 16 pp.

CODEN: FRXXBL

DT Patent

LA French

FAN.CNT 1

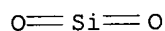
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2243220	A1	19750404	FR 1973-32337	19730907

AB Finely divided SiO₂ [7631-86-9] was milled with a silane in the presence of water to give a filler with **hydrophobic surface** groups which was compounded with poly(**dimethylsiloxane**) and vulcanizing agents to give silicone rubbers with improved tensile strength and elongation. Thus, 200 g SiO₂, specific **surface** area 200 m²/g and bulk d. 65 g/l. was milled 2 hr at 70 rpm with 15 g Me₃SiOEt (I) [1825-62-3] and 2 g H₂O and the product was heated 2 hr at 250.degree. to remove volatiles and give a filler of bulk d. 280 g/l. A compounded mixt. of an **OH**-terminated poly(**dimethylsiloxane**) 128.0, an Me₃Si-terminated poly(**dimethylsiloxane**) 56.0, the treated SiO₂ filler 32.0, vinyl triacetoxysilane 12.8, a second portion of filler 12.0, and dibutyltin dilaurate 6.2 g, which did not flow or creep, was allowed to vulcanize 2 days at room temp. and the rubber obtained had tear strength 12.8 kg/cm, elongation at break 490%, and tensile strength 28 kg/cm². A rubber contg. filler mixed, but not milled, with I had comparison values 9.1 kg/cm, 360%, and 15 kg/cm².

IT **7631-86-9**, uses and miscellaneous
RL: USES (Uses)
(silane-treated, **hydrophobic**, silicone rubber contg.)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

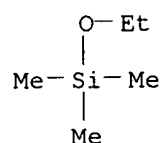
IT **1825-62-3**

RL: USES (Uses)

(silica filler treated with, for silicone rubber)

RN 1825-62-3 HCAPLUS

CN Silane, ethoxytrimethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



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File 342:Derwent Patents Citation Indx 1978-01/200210

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*File 342: Price changes as of 1/1/02. Please see HELP RATES 342.

S1 1 PN='EP 1153426'

*Patent Family
member of
09/841,453*

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Serial#SD138

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1 Select Statement(s), 5 Search Term(s)
Serial#SD139

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Serial#SD140

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Serial#SD141

? ex;ex sd140;ex sd139;ex sd138

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0 CG=AU 200026243 + CG=EP 1153426 + CG=WO 200044036

5 PN=EP 688052 + PN=EP 849796 + PN=US 4072796 + PN=US
4885262 + PN=US 5069816

S4 5 Serial: SD139

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4885262 + CG=US 5069816

S5 27 Serial: SD138

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12 Select Statement(s), 148 Search Term(s)
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20may02 11:08:45 User259284 Session D1791.3

SYSTEM:OS - DIALOG OneSearch

File 350:Derwent WPIX 1963-2001/UD,UM &UP=200231

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*File 350: Please see HELP NEWS 350 for details about U.S. provisional applications. Also more updates in 2002.

File 347:JAPIO Oct/1976-2001/Dec(Updated 020503)

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*File 347: JAPIO data problems with year 2000 records are now fixed. Alerts have been run. See HELP NEWS 347 for details.

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Executing SD142
      43 S1:S11
S1      43 Serial: SD142
? s s1 and hydrophob?
      43 S1
      46560 HYDROPHOB?
S2      9 S1 AND HYDROPHOB?

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Set	Items	Description
S1	43	S1:S11
S2	9	S1 AND HYDROPHOB?
S3	5	S1 AND (SILOXANE? OR POLYSILOXANE?)
S4	2	S3 NOT S2
S5	2	S1 AND (OH OR HYDROX????? OR SIOH)
S6	1	S5 NOT S2:S4

2/9/1 (Item 1 from file: 350)
 DIALOG(R) File 350:Derwent WPIX
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004553635

WPI Acc No: 1986-056979/198609

XRAM Acc No: C86-024129

Surface-stabilised porous silica bodies - having part surface coverage of a metal oxide useful as a chromatographic packing when an organo-silane coating is applied

Patent Assignee: DU PONT DE NEMOURS & CO E I (DUPO)

Inventor: STOUT R W

Number of Countries: 011 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 172730	A	19860226	EP 85305813	A	19850815	198609 B
JP 61058811	A	19860326	JP 85177774	A	19850814	198619
DK 8503699	A	19860216				198620
US 4600646	A	19860715	US 84640821	A	19840815	198631
EP 172730	B	19881207				198849
CA 1247073	A	19881220				198904
DE 3566658	G	19890112				198904
JP 89057046	B	19891204				199001

Priority Applications (No Type Date): US 84640821 A 19840815

Abstract (Basic): EP 172730 A

(A) Surface-stabilised, porous silica bodies (I) having uniform pore size and a particle dia. 0.5-100 micro.m. have a discontinuous surface covering of metal oxide, thereby providing a surface mosaic of metal oxide and Si oxide areas.

(B) prepn. of (I) comprises: (a) mixing an aq. suspension of porous silica bodies with an aq. soln. of a metal cpd. in an amt. sufficient to provide a final ave. coverage of 0.25-less than 4 micro.mol. metal cpd. per sq.m. of silica surface area; (b) removing trapped air from the silica body pore structure; (c) sepg. the solids from the soln; (d) drying the solids to remove surface moisture; and (e) heating to 600-1000 deg.C for 10-72 hrs., (c) A chromatographic packing (II) comprises (I) having a covalently attached organosilane coating.

USE/ADVANTAGE - (I) retain the highly controlled pore size distribution of the starting material silica microspheres. The metal oxide coating in parts hydrolytic stability to subsequently applied organosilane coatings over pH range 3.0-9.0. (II) can be strong anion or cation exchange packing or can be used in ligand or **hydrophobic** chromatography.

Abstract (Equivalent): EP 172730 B

Surface-stabilised, porous silica bodies having uniform pore size and a particle diameter range of 0.5 to 100 micro-m and having a discontinuous surface covering of metal oxide, the bodies having a surface mosaic of metal oxide and silicon oxide areas. (11pp)

Abstract (Equivalent): US 4600646 A

Surface-stabilised, porous silica bodies (I) have uniform pore size and particle dia. ranging from 0.5-100 microns and have a partial surface coverage of metal oxide in amts. insufficient to form a continuous layer over the silica but sufficient to effect an improvement in hydrolyte stability relative to uncoated silica, thereby providing a surface mosaic of metal oxide and silicon oxide.

Pref. the surface coverage ranges from 0.25 to below 4 micromoles of metal cpd. per square metre of silica surface area.

Pref. the starting material is uniform-sized silica microspheres. Also new is chromatographic packing comprising bodies (I).

5/19/02 09/841,453

ADVANTAGE - Bodies (I) retain the highly controlled pore size distribution of the starting material silica microspheres. (8pp)r
Title Terms: SURFACE; STABILISED; POROUS; SILICA; BODY; PART; SURFACE;

2/9/2 (Item 2 from file: 350)
 DIALOG(R) File 350:Derwent WPIX
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003515685

WPI Acc No: 1982-63667E/198230

Hydrophobic particulate porous or agglomerates silica(te) compsn. -
 forming defoaming compsn. for controlling foam in paper-making processes
 Patent Assignee: ECONOMICS LAB INC (ECON)

Inventor: MALONEY J E

Number of Countries: 010 Number of Patents: 013

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 8202414	A	19820722				198230 B
SE 8205144	A	19821101				198246
NO 8203077	A	19821108				198248
BR 8108954	A	19821214				198305
JP 58500062	W	19830113				198308
DE 3152678	A	19830224				198309
GB 2107695	A	19830505	GB 8124674	A	19811203	198318
FI 8203146	A	19830429				198323
CA 1153275	A	19830906				198339
US 4443357	A	19840417	US 81224149	A	19810112	198418
GB 2107695	B	19850626				198526
IT 1142647	B	19861008				198829
JP 92069087	B	19921105	WO 81US1620	A	19811203	199249
			JP 82500298	A	19811203	

Priority Applications (No Type Date): US 81224149 A 19810112

Abstract (Basic): WO 8202414 A

A **hydrophobic**, particulate, porous or agglomerated silica or silicate contg. at least 40 mole % SiO₂ as silica or silicate comprises the reaction product of (a) hydrophilic particulate porous or agglomerated silica or silicate of av. particle size above 0.1 micron but small enough to be non-settling and (b) **hydrophobic** aliphatic prim. or sec. alcohol, (a) and (b) being heated together at above 100 deg.C.. A **hydrophobic** pptd. silica contg. defoaming compsn. comprising the above reaction product and a liquid hydrocarbon or deriv. of b.pt. over 100 deg.C is also claimed.

The defoaming compsn. is used to control the foam in paper-making, esp. in repulping and defoaming black and white liquor and other waste or recyclable liquors and also in deinking and water laid sheet mfr. other uses are in food processing e.g. beet sugar refining and waste treatment.

Use of the aliphatic alcohol (b) instead of prior art polysiloxanes eliminates problems associated with the uniform taking up of printing ink by the paper stock

Abstract (Equivalent): GB 2107695 B

A substantially **hydrophobic**, particulate, porous or agglomerated silica or silicate containing at least 40 mole-% SiO₂ as silica or silicate, the **hydrophobic** particulate silica or silicate being the reaction product of the components consisting essentially of: (a) a hydrophilic, particulate, porous or agglomerated silica or silicate containing at least 40 mole-% SiO₂ as silica or silicate, the porous or agglomerated particles of which have an average particle size larger than 0.1 micrometers but small enough to be generally non-settling, and (b) a C₈-30 aliphatic straight-chain primary alcohol, said reactants (a) and (b) having been heated together in admixture to a temperature above 100 deg.C until the reactants interact to form said reaction product.

Abstract (Equivalent): US 4443357 A

Hydrophobic, particulate, porous or agglomerated silica or

silicate contains at least 40 mole % SiO₂ as silica or silicate. It is obtd. by reacting (A) hydrophilic, particulate, porous or agglomerated silica or silicate contg. at least 40% SiO₂ as silica or silicate and having average particle size above 0.1 micron but small enough to be nonsettling with (B) **hydrophobic** aliphatic prim. or sec. alcohol free of hydrophilic gps., and pref. contg. 8-28C atoms.

(A) and (B) are heated together at above 100 deg.C until reaction occurs. Ratio of silica or silicate to alcohol is 0.25-20:1. The prod. can be used in defoaming compsns. for paper-making, food processing, waste treatment, etc. (14pp)1

2/9/5 (Item 5 from file: 350)
 DIALOG(R) File 350:Derwent WPIX
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001578078

WPI Acc No: 1976-12465X/197607

Hydrophobic silicic acid or alkali silicate particles - prep'd by
 treatment with pre-polycondensed organo-halo-silane

Patent Assignee: DEUT GOLD & SILBER AG (DEGS)

Number of Countries: 007 Number of Patents: 010

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
NL 7508898	A	19760127				197607 B
BE 831705	A	19760126				197608
DE 2435860	A	19760212				197608
JP 51014900	A	19760205				197612
FR 2279667	A	19760326				197620
DE 2435860	B	19771020				197743
US 4072796	A	19780207				197808
GB 1504977	A	19780322				197812
JP 82008763	B	19820218				198211
NL 179829	B	19860616				198628

Priority Applications (No Type Date): DE 2435860 A 19740725

Abstract (Basic): NL 7508898 A

Fine particles of **hydrophobic** silicic acid or silicates are
 prep'd. by b pptng. alkali silicate solns. with inorganic acids or metal
 salts solns. in known way, treating the acid pptd. suspension at 50-90
 degrees C with a pre-polycondensed organohalosilane(s), filtering,
 washing drying and heating at 300-400 degrees C. Pref.
 dimethyldichlorosilane (I) or a mixt. of I and methyltrichlorosilane
 are pre-polycondensed by addn. of the stoichiometric amt. of water. The
 treated materials are used e.g. in cable mixes and water-resistant
 vulcanisates, as thickeners in water-resistant lubricants, in n
 on-foaming cosmetics, as pigments in organic binders as matting agents
 in lacquers, and as additives to anti-foams. TiO₂ or ZrO₂ can be
 rendered **hydrophobic** in the same way. The yield in the last stage
 of the process is improved.

Title Terms: **HYDROPHOBIC**; **SILICIC**; **ACID**; **ALKALI**; **SILICATE**; **PARTICLE**;

2/9/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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001145985

WPI Acc No: 1974-19688V/197411

Hydrophobising gp II-IV metal silicates - by treating suspension at
15-70oC with organo halo silane reacting with free hydroxyl groups and
tempering prod at 200-500oC

Patent Assignee: DEUT GOLD & SILBER AG (DEGS)

Number of Countries: 004 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 2242728	A	19740307				197411 B
FR 2197961	A	19740503				197422
GB 1400933	A	19750723				197530
US 3904787	A	19750909				197538
DE 2242728	B	19770217				197708

Priority Applications (No Type Date): DE 2242728 A 19720831

Abstract (Basic): DE 2242728 A

The process comprises adding an organohalosilane (I) to the
silicate aq. pptn. suspension, with intensive stirring, and tempering
the prod. after filtering, washing and drying. The prod. can be used
to improve the flow behaviour of powders and as active filler, e.g.,
for light-coloured rubber and plastics prods. Its organophilic and
hydrophobic props. are retained almost indefinitely. (I) consists
of mono-, di- and/or tri-halosilanes, esp. a mixt. of ca. 70% MeSiCl₂
and 30% MeSiCl₃.

Title Terms: **HYDROPHOBIC**; GROUP; IV; METAL; TREAT; SUSPENSION; ORGANO

20may02 11:00:11 User259284 Session D1791.1

SYSTEM:OS - DIALOG OneSearch

File 34:SciSearch(R) Cited Ref Sci 1990-2002/May W3

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File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec

(c) 1998 Inst for Sci Info

Set	Items	Description
S1	2	CR='GENTLE TE, 1992, V274, P115, SUBMICRON MULTIPH'
S2	15	CR='GENTLE TE, 1992, P295, SILANES OTHER COUPLI':CR='GENTLE TE, 1992, V6, P307, J ADHES SCI TECHNOL'
S3	13	S2 NOT S1
S4	348	CR=DRAGE JS?
S5	603	CR=WU HJ?
S6	0	4AND5
S7	951	S4:S5
S8	0	S7 AND NANO
S9	0	S7 AND NANOPOR?
S10	11	S7 AND (SILOXANE? OR POLYSILOXANE?)
S11	7	S7 AND HYDROPHOB?
S12	7	S11 NOT S10

1/3,AB,K/1 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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05508005 Genuine Article#: WD303 Number of References: 475
Title: The sol-gel route to inorganic-organic composites (ABSTRACT
AVAILABLE)

Author(s): Mark JE (REPRINT)

Corporate Source: UNIV CINCINNATI, DEPT CHEM/CINCINNATI//OH/45221 (REPRINT);
UNIV CINCINNATI, POLYMER RES CTR/CINCINNATI//OH/45221

Journal: HETEROGENEOUS CHEMISTRY REVIEWS, 1996, V3, N4 (DEC), P307-326

ISSN: 1068-6983 Publication date: 19961200

Publisher: JOHN WILEY & SONS LTD, BAFFINS LANE CHICHESTER, W SUSSEX,
ENGLAND PO19 1UD

Language: English Document Type: REVIEW

Abstract: The present review attempts to give a broad overview of work on inorganic-organic composites prepared by the sol-gel approach currently being used as a more chemically based route to ceramics. In much of this work, an in situ generated ceramic material is dispersed as a reinforcing phase in a polymeric host matrix, at various levels of dispersion and with a variety of overall morphologies. In other applications, it is the continuous phase with the organic phase distributed in it. One of the major applications in this case is the improvement of mechanical properties of the ceramic and, for this purpose, the organic phase is again polymeric. Other guest molecules are becoming increasingly investigated, however, including dyes, biologically active species, and catalysts. Although this is primarily an educational-tutorial review, an unusually extensive list of references to the literature has been included in the hope of making this review useful, as well, to those already familiar with this research area.

Cited References:

...GENTLE TE, 1992, V274, P115, SUBMICRON MULTIPHASE

1/3,AB,K/2 (Item 2 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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05463207 Genuine Article#: WA584 Number of References: 380
Title: CERAMIC-REINFORCED POLYMERS AND POLYMER-MODIFIED CERAMICS (Abstract Available)

Author(s): MARK JE

Corporate Source: UNIV CINCINNATI,DEPT CHEM/CINCINNATI//OH/45221; UNIV CINCINNATI,POLYMER RES CTR/CINCINNATI//OH/45221

Journal: POLYMER ENGINEERING AND SCIENCE, 1996, V36, N24 (DEC), P2905-2920
ISSN: 0032-3888

Language: ENGLISH Document Type: ARTICLE

Abstract: The composites discussed in this review are prepared using techniques similar to those used in the new sol-gel approach to ceramics. Organometallics such as silicates, titanates, and aluminates are hydrolyzed in the presence of polymer chains (for example polysiloxanes and polyimides) that typically contain hydroxyl or amino groups. The functional groups are used to bond the polymer chains onto the silica, titania, or alumina being formed in the hydrolysis, thus forming organic-inorganic composites. When the polymer chains are present in excess, they constitute the continuous phase, with the ceramic-type material appearing as reinforcing particles. When present in smaller amounts, the polymer is dispersed in the continuous ceramic phase, to give a polymer-modified ceramic. Under some conditions, bicontinuous systems are obtained. The composites thus prepared are characterized by electron microscopy, Xray, and neutron scattering intensities, density determinations, and stress-strain and impact-strength measurements.

Cited References:

...GENTLE TE, 1992, V274, P115, SUBMICRON MULTIPHASE
? s s2 not s1

10/3,AB,K/2 (Item 2 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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09023098 Genuine Article#: 357VU Number of References: 47
Title: Polymer derived engineering ceramics (ABSTRACT AVAILABLE)
Author(s): Greil P (REPRINT)
Corporate Source: UNIV ERLANGEN NURNBERG, DEPT MAT SCI GLASS & CERAM,
MARTENSSTR 5/D-91058 ERLANGEN//GERMANY/ (REPRINT)
Journal: ADVANCED ENGINEERING MATERIALS, 2000, V2, N6 (JUN), P339-348
ISSN: 1438-1656 Publication date: 20000600
Publisher: WILEY-V C H VERLAG GMBH, MUHLENSTRASSE 33-34, D-13187 BERLIN,
GERMANY
Language: English Document Type: ARTICLE
Abstract: Engineering ceramics in the system Si-O-C-N-B manufactured from
preceramic silicon containing polymers gain in significance with
increasing availability of advanced precursor materials such as
poly(carbosilane), -(silazane), -(siloxane) or -(borosilazane).
While high temperature resistant Si-C and Si-N ceramic fibers are
already used to reinforce ceramic matrix composites (CMC) in air- and
spacecraft structures, novel products such as coatings, tapes, foams,
and complex shaped components for medium and low temperature
applications In the fields of energy, environmental, transportation,
and communication technologies become more important in the future.
Preceramic polymers offer the possibility of using versatile plastic
shaping technologies as well as advanced laminated object manufacturing
techniques. Properties can be varied in a wide range by tailoring the
molecular structure and composition of the precursor polymer and by
loading the polymer with inert or reactive filler powders. Partial
conversion of the of the organic polymer into organic/inorganic hybrid
materials yields novel materials which exhibit properties between
polymers and ceramics.

Cited References:
...WU HJ, 1992, V25, P1840, MACROMOLECULES

10/3,AB,K/3 (Item 3 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2002 Inst for Sci Info. All rts. reserv.

08742189 Genuine Article#: 324LB Number of References: 15
Title: Influence of organic components and the parameters of plastic
forming on essential properties of polymer-derived ceramic composites
(ABSTRACT AVAILABLE)

Author(s): Schubert R (REPRINT) ; Kastner F

Corporate Source: HERMSDORFER INST TECH KERAM HITK EV,MARIE CURIE STR
17/D-07629 HERMSDORF//GERMANY/ (REPRINT)

Journal: CFI-CERAMIC FORUM INTERNATIONAL, 2000, V77, N5 (MAY), P32-40

ISSN: 0173-9913 Publication date: 20000500

Publisher: GOLLER VERLAG GMBH, ASCHMATTSTRASSE 8, D-76532 BADEN BADEN,
GERMANY

Language: English Document Type: ARTICLE

Abstract: With the use of organic, thermoplastic or liquid ceramic precursors on a **polysiloxane** basis, novel ceramic or ceramic-like composites can be processed with plastic forming methods, such as injection moulding or extrusion for example, without the addition of large quantities of wax-like plasticizing agents which would subsequently have to be removed. On the basis of cross-linkable **polysiloxanes** filled in a ceramic process, the thermoplastic flowability was examined conditional on the type of filling and the addition of plasticizers. Optimized material systems were processed by means of injection moulding or extrusion, the morphological and mechanical properties of the composites and their silicon resin matrix were characterized. At thermal loads above 300 degrees C, an increase in the porosity and a decrease in the mechanical strength of the polymer-derived ceramic composites result, caused by the pyrolytic decomposition of the organic constituents in the **polysiloxane** matrix. With the addition of glass-forming components such as boric acid or sodium polyphosphate, a decrease in the porosity and an increase in the strength of the composites could be achieved, which can be attributed to the development of flowable glassy phases in the composite matrix during thermal treatment between 300 and 900 degrees C.

...WU HJ, 1996, V435, P431, MATER RES SOC SYMP P